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**A revisional study on Szépligeti's cardiochiline type specimens deposited
in the Hungarian Natural History Museum, Budapest (Hymenoptera,
Braconidae: Cardiochilinae)***

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Abstract – Types of eleven cardiochiline braconid species described by Győző Szépligeti between 1902 and 1914 are revised and redescribed. The species are assigned to five genera of the subfamily Cardiochilinae. *Schoenlandella* Cameron, 1904 is treated as the subgenus *Cardiochiles* Nees, 1818 (stat. n.). Taxonomic positions of the genera *Austerocardiochiles*, *Heteropteron*, *Psilommiscus* and *Wesmaelella* are discussed. *Psilommiscus albopilosus* (Szépligeti, 1902) is a senior name over *P. sumatranus* Enderlein, 1912. Two new combinations are introduced: *Austerocardiochiles punctatus* (Szépligeti, 1913) and *Psilommiscus albopilosus* (Szépligeti, 1902). A checklist of Szépligeti's eleven species is given supplemented with the examined type specimens. With 171 figures.

Key words – *Austerocardiochiles*, *Cardiochiles*, checklist, distribution, *Heteropteron*, *Neocardiochiles*, *Psilommiscus*, *Psilophthalmus*, redescription, *Schoenlandella*, taxonomic position, *Toxoneuron*, *Wesmaelella*

INTRODUCTION

Győző (= Victor) Szépligeti (1833–1915), a high school biology teacher in Budapest (he changed his family name from Schönbauer in 1870), started to work on ichneumon and braconid wasps (Ichneumonidae, Braconidae) and on other smaller wasp families following the advice of Sándor Mocsáry, curator of the Hymenoptera Collection of the Hungarian National Museum at that time (CSIKI 1915). Szépligeti published 61 entomological papers, describing 886 new species of Hymenoptera. He donated his insect collection to the National Museum, and it is still preserved today in the Hungarian Natural History Museum.

Between 1902 and 1914 Szépligeti described eleven new cardiochiline braconid species from several tropical countries in the Old and New Worlds. Originally Szépligeti arranged his species in four genera: *Cardiochiles* Nees, 1818,

* The paper is dedicated to Dr László Móczár, doyen of Hungarian hymenopterists, celebrating his 100th birthday.

Neocardiochiles Szépligeti, 1908, *Toxoneuron* Say, 1836 and *Psilophthalmus* Szépligeti, 1902 – later *Neocardiochiles* and *Psilophthalmus* were placed in junior synonymy with *Heteropteron* Brullé, 1846 and *Wesmaelella* Spinola, 1853, respectively. The type specimens of the eleven species are deposited in the Hymenoptera Collection of the Hungarian Natural History Museum, Budapest.

The original descriptions by Szépligeti are quite short, focused on the colour pattern, a few alar venation forms and rather less specific sculptural features. In the redescrptions of Szépligeti's cardiochiline species those specific differences were mainly considered that comply the requirements of the up-to-date taxonomic description of the braconids. The length of the descriptions given by Szépligeti counts usually 6 to 10, rarely 20 to 30, printed lines. In the recent taxonomic practice the (re-)descriptions of braconid species are usually extending the length to at least 30–50, frequently 60–70, printed lines.

Taxonomic status of the genus Schoenlandella – The genus *Cardiochiles* was described by Nees in 1818 and the genus *Schoenlandella* by Cameron in 1904. *Schoenlandella* differs from *Cardiochiles* by a single and very subtle feature of the forewing venation: in *Cardiochiles* *SR1* missing *3r* (Fig. 80, see arrow), in *Schoenlandella* *SR1* with a short vein *3r* (Figs 52, 60, 66, see arrow) “present as a spectral trace” (DANGERFIELD *et al.* 1999: 955), the vein *SR1* itself is more or less angled from where *3r* is ramifying. As complementary marks to the absence or presence of *3r* are (1) hypopygium medio-longitudinally evenly sclerotized (i.e. here not membranous) or more or less desclerotized (i.e. here membranous) and (2) mouthparts (glossa, galea) not elongated or slightly elongated. Presence or absence of these three features is unstable, i.e. their presence varies from well to nebulous visibility even in the specimens of the same species. The uncertainty of the discrimination of the genera *Cardiochiles* and *Schoenlandella* led to the statement by MERCADO & WHARTON (2003: 878) that: “None of the New World species we have seen resembles the typical *Schoenlandella* in all respects, and assignment of New World species to this genus thus remains problematic.” The authors present a detailed analysis of the three features (in nearly two printed pages) before they declare their statement. As a consequence, in full agreement with the statement and seeing the high variability of the generic features of *Schoenlandella*, I assign the taxon *Schoenlandella* as a subgenus of *Cardiochiles* (stat. n.). The respective five Szépligeti's species are rearranged following their subgeneric assignment: *Cardiochiles* (*Cardiochiles*) *fuscipennis*, C. (*Schoenlandella*) *niger*, C. (*Sch.*) *szepligetii*, C. (*C.*) *variegatus* and C. (*C.*) *xanthocarpus*. DANGERFIELD *et al.* (1999: 936, 954–959, 966) are of the opinion that *Schoenlandella* is a valid (“good”) genus and arranged the five Szépligeti's species as follows: *niger*, *szepligetii* and *variegatus* belong to the genus *Schoenlandella*, *fuscipennis* to *Cardiochiles* and *xanthocarpus* is “incertae sedis”.

The females of three Szépligeti's species are described: *Austerocardiochiles enderleini* (Szépligeti), *Cardiochiles* (*Schoenlandella*) *szepligetii* Enderlein and *Psilommiscus albopilosus* (Szépligeti).

Two species are placed in new combination (comb. n.): *Austerocardiochiles punctatus* (Szépligeti) and *Psilommiscus albopilosus* (Szépligeti).

The subsequent checklist summarizes the present taxonomic status of the eleven cardiochiline species by Szépligeti. Besides the usual data (taxonomic name, author, original generic name, distribution) the examined types as well as the number of further specimens (female, male) are also added.

Austerocardiochiles Dangerfield, Austin et Whitfield, 1999

enderleini (Szépligeti, 1908) (*Cardiochiles*) – Kenya, Tanzania; male lectotype + 1 female

punctatus (Szépligeti, 1913) (*Cardiochiles*) – throughout Ethiopian region; male lectotype, 4 females + 2 males

Cardiochiles Nees, 1818

(*Cardiochiles*) *fuscipennis* Szépligeti, 1900 – Indo-Australian region; male lectotype and one female + two male paralectotypes, 2 females

(*Schoenlandella*) *niger* Szépligeti, 1914 – throughout Ethiopian region; female paralectotype

(*Schoenlandella*) *szepligetii* Enderlein, 1906 = *C. testaceus* Szépligeti, 1902, nec *C. testaceus* Kriechbaumer, 1894 – Indo-Australian region; male lectotype, two females (Malaysia: Malacca)

(*Cardiochiles*) *variegatus* Szépligeti, 1913 – Ethiopian region; female lectotype, one male paralectotype

(*Cardiochiles*) *xanthocarpus* Szépligeti, 1913 – Tanzania; female lectotype

Heteropteron Brullé, 1846 = *Neocardiochiles* Szépligeti, 1908

fasciipennis (Szépligeti, 1908) (*Neocardiochiles*) – Suriname; female lectotype

Psilommiscus Enderlein, 1912

albopilosus (Szépligeti, 1902) (*Cardiochiles*) = *sumatranus* Enderlein, 1912, **syn. n.** (*Psilommiscus*) – Indonesia (Sumatra); male lectotype

Toxoneuron Say, 1836

bicolor Szépligeti, 1902 – USA, Colombia, Cuba, Mexico

Wesmaelella Spinola, 1853 = *Psilophthalmus* Szépligeti, 1902

nigripennis (Szépligeti, 1902) (*Psilophthalmus*) – Brazil; female lectotype

REDESCRIPTIONS OF THE CARDIOCHILINE SPECIES BY SZÉPLIGETI

The following abbreviations are applied in the redescriptions (after VAN ACHTERBERG 1993: 5, Figs H–K):

Eye: OOL = shortest distance between hind ocellus and compound eye.
POL = shortest distance between hind two ocelli.

Forewing venation: *cu-a* = nervulus or transverse cubito-anal vein, *m-cu* = nervus recurrens or transverse medio-cubital vein, *r* = transverse or first section of the radial vein, *r-m* = second transverse radio-medial vein, *SR1* = third section of the radial vein, *1-CU1* and *2-CU1* = first and second sections of the discoidal vein, *1-M* = basal vein, *1-R1* = first section of the metacarpal vein, *1-*

SR-M = first section of the median vein, *2A* = first transverse anal vein, *2-SR* = first transverse section of the radial vein, *3r* = spectral trace (or “nebulous”) vein of the third section of the radial vein, *3-SR* = second section of the radial vein.

Hind wing venation: *cu-a* = nervellus, *r* = transverse radiallan vein, *1-SR* and *2-SR* = first and second sections of the radiallan vein.

Surface sculpture terminology is used after EADY (1968) and HARRIS (1979). Structure terminology is used after GAULD & BOLTON (1988: 58–74).

Where not indicated the distributional data were applied after YU *et al.* (2012).

Type depositories: HNHM = Hungarian Natural History Museum (Magyar Természettudományi Múzeum), Budapest; ZMB = Museum für Naturkunde – Leibniz-Institut für Evolutions- und Biodiversitätsforschung an der Humboldt-Universität zu Berlin.

Austerocardiochiles Dangerfield, Austin et Whitfield

Austerocardiochiles Dangerfield, Austin et Whitfield, 1999: 926 (in key) and 929 (description). – Type species: *Cardiochiles pollinator* Dangerfield et Austin, 1995.

Remarks – From the 15 cardiochiline genera the species of *Austerocardiochiles* are easy to recognize and discriminate by their strong corporal sculpture. For further characterisation of the genus see DANGERFIELD *et al.* (1999).

Austerocardiochiles enderleini (Szépligeti)

(Figs 1–13)

Cardiochiles enderleini Szépligeti, 1908: 423 ♂ (male lectotype in HNHM). – DE SAEGER 1948: 14 (in key), 20 (citation of the original description). SHENEFELT 1973: 789 (literature up to 1948). PAPP 2004: 185 (type locality, lectotype designation and condition).

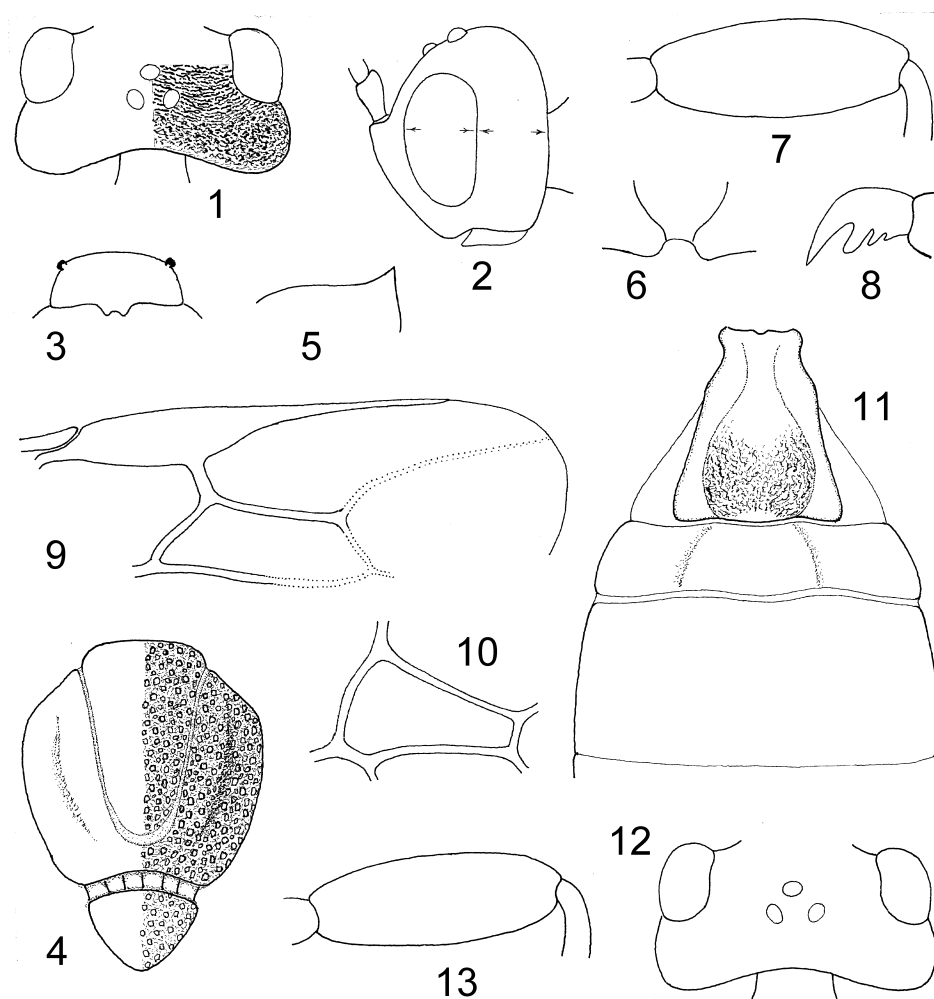
Austerocardiochiles enderleini (Szépligeti, 1908): DANGERFIELD *et al.* 1999: 931 and 975 (comb. n.).

Lectotype labels – (First label, printed) “Africa or. / Katona” [= K. Kittenberger]; (second label, printed) “Mto-ja Kifaru”, (reverse of second label, handwritten) “1905 I.”; (third label, printed) “Tanzania”; fourth label is the lectotype tag; fifth label is with the inventory number 763.

Redescription of the male lectotype – Body length 8 mm. Antenna shorter than body: as long as head, mesosoma and half metasoma combined. First flagellomere 1.4 times as long as broad, further flagellomeres shortening so that last 10–12 flagellomeres cubic. – Head in dorsal view transverse (Fig. 1), twice as broad as long, eye as long as temple, temple swollen (i.e. head between temples broader than between eyes). Eye hairy, in lateral view 1.8 times as high as wide, gena and eye equally wide (Fig. 2, see arrows). Face 1.75 times as wide as high, in-

ner margin of eyes parallel. Clypeus twice as wide as high, its lower edge medially somewhat produced and here with a pair of denticles (Fig. 3). Rostrum short. Face and clypeus densely rugulose, gena rugose, frons transversely strio-rugulose, vertex with rugulae-rugae and interspaces shiny.

Mesosoma in lateral view 1.4 times as long as high. Pronope missing. Notaulix evenly deep, smooth, meeting posteriorly. Mesoscutum roughly, scutellum



Figs 1–13. *Austerocardiophiles enderleini* (Szépligeti, 1908) (1–11: male lectotype, 12–13: female): 1 = head in dorsal view, 2 = head in lateral view, 3 = clypeus, 4 = mesoscutum and scutellum in dorsal view, 5 = dorsal contour of scutellum in lateral view, 6 = V-form carination of propodeum, 7 = hind femur, 8 = claw, 9 = distal part of right forewing, 10 = first discal cell, 11 = tergites 1–3, 12 = head in dorsal view, 13 = hind femur

less roughly punctate (Fig. 4), scutellum not bordered by carina, apically weakly pointed (Fig. 5). Mesopleuron finely and less confluent punctate, precoxal suture crenulated, anteriorly of it fairly densely punctulate, posteriorly smooth and shiny (*cf.* Fig. 32). Propodeum with a horizontal and vertical part, rather rugulose and pubescent horizontally, vertically above lunule with a V-form carination (Fig. 6). – Hind femur thick, 2.4 times as long as broad medially (Fig. 7). Inner spur of hind tibia half as long as basitarsus. Claw downcurved, basal lobe pectinulate as in Figure 8.

Forewing somewhat shorter than body, 6.5 mm long. Pterostigma (Fig. 9) 3.6 times as long as wide and issuing *r* distally from its middle, *r* 0.6 times as long as width of pterostigma. Second submarginal cell: 3–SR almost 1.5 times as long as 2–SR, both veins (weakly) bent, SR1 not broken. First discal cell (Fig. 10) fairly high, 1–M 3.3 times longer than very short *m-cu*, 1–SR–M bent and 1.6 times as long as 1–M.

First tergite (Fig. 11) slightly longer than broad at rear (40:35), distinctly broadening posteriorly, scutum nearly round, margin of tergite 1 narrow, scutum rugo-rugulose with fairly much striolate elements. Second tergite narrow, 4.5 times as broad as long medially, third tergite 2.3 times longer than second tergite, suture between tergites 2–3 distinct, smooth; tergites (beyond second tergite) pubescent.

Ground colour of body black. Testaceous: pronotum, mesoscutum, scutellum, meso- and metapleuron, hind half of propodeum and first tergite basally and laterally. Legs also black. Wings proximally hyaline, distally brownish fumous. Pterostigma and metacarp brown, veins light brownish.

Description of the female – (1 ♀) Similar to male lectotype. Body 6.5 mm long. Antenna shorter than body and with 35 antennomeres. Head in dorsal view 1.85 times as broad as long, eye somewhat longer than temple (17:15), temple indistinctly swollen (Fig. 12). Sculpture of head and mesosoma somewhat stronger. Hind femur less thick, 2.5 times as long as broad medially (Fig. 13). First tergite 1.25 times as long as broad at rear, less broadening posteriorly. Hypopygium pointed, ovipositor sheath posteriorly widening and apically truncate, as long as hind tibia. Body black, testaceous: pronotum laterally, mesoscutum, scutellum, mesopleuron partly and metanotum. – Locality of the single female: “N. Tanganyika, Same, Mai 1962” (HNHM).

Host unknown.

Distribution – Kenya, Tanzania.

Taxonomic position – *Austerocardiochiles enderleini* is nearest to *A. rufithorax* (ENDERLEIN) considering their rugose head and mesosoma and testaceous colour of mesosoma; the males of the two species are clearly separable by the features keyed:

- 1 (2) Temple in dorsal view swollen (Fig. 1). Clypeus medially somewhat produced and here with a pair of small denticles (Fig. 3). Scutellum not bordered by carina, apically weakly pointed (Fig. 5). Antenna with 35 antennomeres. $\varphi\sigma$: 6–8 mm. – Kenya, Tanzania *A. enderleini* (Szépligeti, 1908)
- 2 (1) Temple in dorsal view “roundly contracted” (Fig. 15 in HUDDLESTON & WALKER 1988: 447). Clypeus apically “without obvious tubercles or incision.” Scutellum “bordered by distinct carina”, apically not pointed. Antenna with 31 antennomeres. σ : 5 mm. – Equatorial Guinea, Gambia, Nigeria, Sierra Leone *A. rufithorax* (Enderlein, 1906)

Austerocardiachiles punctatus (Szépligeti) is also close to *A. enderleini*, their distinction see at the first species.

Austerocardiachiles punctatus (Szépligeti), comb. n.
(Figs 14–28)

Cardiachiles punctatus Szépligeti, 1913: 603 σ (male lectotype in HNHM). – DE SAEGER 1948: 17 (in key), 46 (citation of the original description, distribution). SHENEFELT 1973: 797 (literature up to 1948). HUDDLESTON & WALKER 1988: 443 (in key) and 451 (short redescription). PAPP 2004: 185 (type locality, lectotype designation and condition).

Cardiachiles striatus Brues, 1924: 95 male. – DE SAEGER 1948: 17 as valid species (in key), 39 (citation of the original description, distribution). SHENEFELT 1973: 800 (as valid species, literature up to 1948). HUDDLESTON & WALKER 1988: 451 (synonymization).

Schoenlandella punctata (Szépligeti, 1913): DANGERFIELD *et al.* 1999: 959, 976 (comb. n.)

Taxonomic remarks – Although the forewing *SR1* is with a spectral trace (“nebulous”) *3r* the species, however, is assigned to the genus *Austerocardiachiles* considering its general corporal build and strongly sculptured mesosoma (Fig. 17).

Lectotype labels – (First label, printed) “Arusha / 1905 X.”; (second label, printed) “Africa or. / Katona” [= K. Kittenberger]; (third label, printed) “Tanzania”; fourth label is the lectotype card; fifth label is with inventory number 774.

Male lectotype – (Additional features to the redescription by HUDDLESTON & WALKER 1988.) Body length 6 mm. Antenna apically deficient: right antenna with 35 and left antenna with 34 antennomeres. First flagellomere 1.6 times as long as broad, further flagellomeres shortening so that distal flagellomeres cubic. – Head in dorsal view transverse (Fig. 14), 1.8 times as broad as long, eye almost twice longer than temple (21:11), temple contracted, occiput excavated. Ocelli middle-sized, almost round, OOL three times as long as POL. Eye in lateral view 2.3 times as high as wide, temple just narrower than eye (14:15) and ventrally slightly narrowing (Fig. 15, see arrows). Lower edge of clypeus medially with weak (hardly distinct) excision, i.e. without small denticles, clypeus itself twice as wide below as high medially (Fig. 16). Rostrum long, as long as fore tarsomeres 1–2 combined. Face with more or less confluent punctation, clypeus with weaker punctation and shiny. Gena dorso-ventrally with weakening punctation to almost polished. Head above with fine transverse striolation.

Mesosoma in lateral view 1.2 times as long as high. Pronope missing. Notaulix evenly deep and subcrenulated. Middle lobe of mesoscutum with a pair of weak longitudinal grooves; mesoscutum and scutellum densely punctate (Fig. 17). Propodeum medially with a quadrate areola (Fig. 18). Hind femur 2.8 times as long as broad medially (Fig. 19). Inner spur of hind tibia 0.75 times as long as basitarsus. Claw downcurved and pectinulates somewhat thick (Fig. 20).

Forewing as long as body. Pterostigma (Fig. 21) 2.8 times as long as wide, issuing *r* clearly distally from its middle, *r* 0.7 times as long as width of pterostigma. Second submarginal cell: 3-SR 1.7 times as long as 2-SR, 2-SR bent and 3-SR straight, SR1 curved (i.e. not broken) and with vein 3*r* very weakly distinct ("nebulous", Fig. 21, see arrow). First discal cell: 1-M straight and almost 3 times as long as short *m-cu*, 1-SR-M straight and 1.8 times as long as 1-M (Fig. 22).

First tergite (Fig. 23) as long as broad at rear, clearly broadening posteriorly, scutum behind rugulose. Second tergite 2.5 times as broad behind as long medially, 3rd tergite 1.5 times longer than 2nd tergite, suture between them distinct, smooth, straight; both tergites medially just uneven. Further tergites polished.

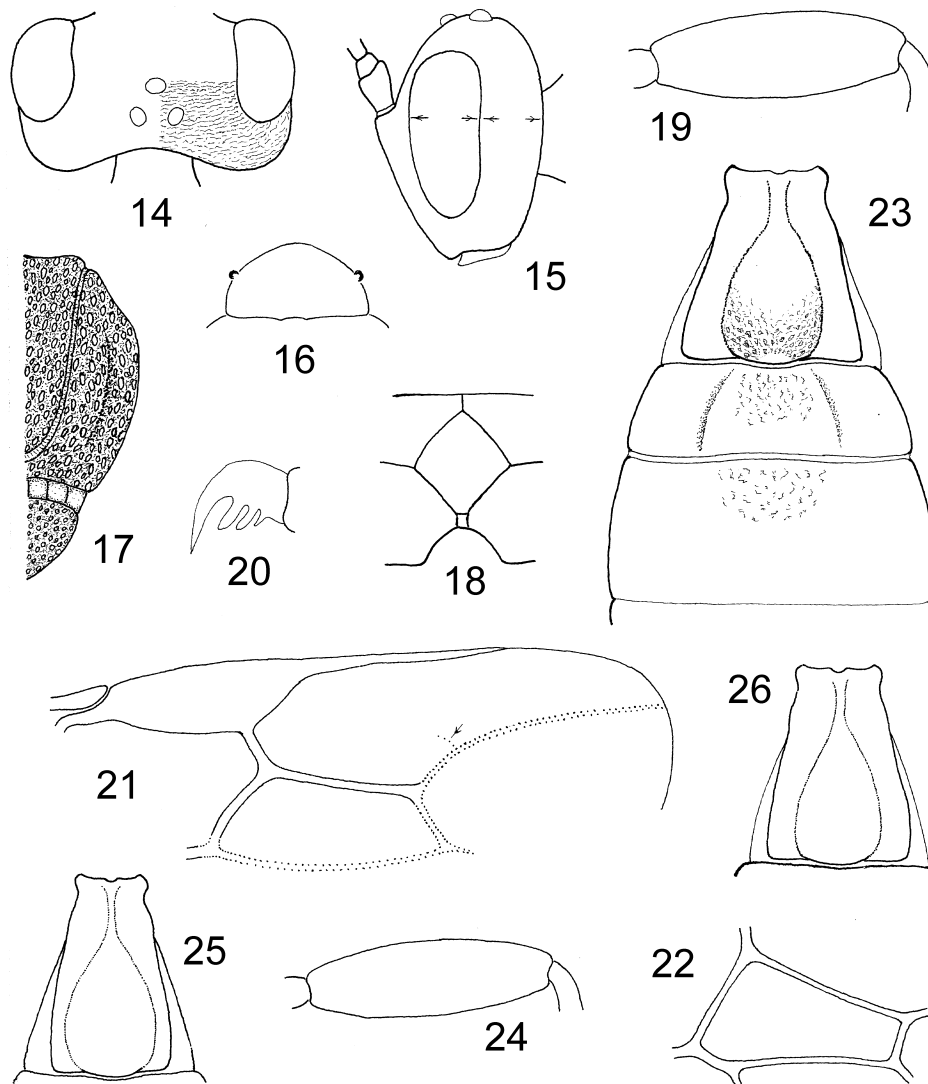
Ground colour of body yellow. Antenna, ocellar field and three maculae of mesoscutum black. Legs yellow, tarsi 1-2 brownish fumous, tarsus 3 blackish. Wings evenly brownish fumous. Pterostigma: basal half yellow, distal half brown; metacarp yellow, veins proximo-distally yellowish to brownish.

Differing features of three males – Body length 5.5–6 mm. Antenna with 36 (1 ♂) and 44 (1 ♂) antennomeres. Head in dorsal view twice as broad as long (1 ♂). Hind femur 2.6 times (1 ♂, cf. Fig. 13) and 3.1 times (1 ♂) as long as broad. First tergite 1.6 times as long as broad and its lateral margin very narrow (Fig. 25); first tergite 1.5 times as long as broad posteriorly and its lateral margin wide (Fig. 26). Body entirely yellow (1 ♂).

Differing features of four females – Body length 5.5 mm. Antenna with 40–44 antennomeres. Sculpture of body weak (1 ♀). Hind femur 2.6 times (cf. Fig. 13) and 3.1 times (Fig. 24) as long as broad medially. Forewing: pterostigma narrow, four times as long as wide; second submarginal cell short, 3-SR 1.25 times as long as 2-SR (Fig. 27). First tergite 1.6 times as long as broad at rear (Fig. 25), 3rd tergite 1.4 times longer than 2nd tergite (3 ♀). Hypopygium truncate, ovipositor sheath short, as long as fore basitarsus, wide and apically pointed as in Fig. 28. Body entirely yellow, hind tarsus blackish.

Localities of the three males and four females – 1 ♂ + 1 ♀: Senegal, Nioro-du-Rip, taken with Malaise trap in pearl millet, 39th week 1988, leg. S. Bhatnagar. 1 ♂ + 3 ♀: Somalia, Mogadiscio, Afgoi, Shabelli valley, 17–24 May (3 ♀) and September (1 ♀) 1978, leg. F. Bin. 1 ♂: Uganda, Mujenje, September 1913, leg. Katona (= K. Kittenberger). (All specimens in HNHM.)

Host unknown.



Figs 14–26. *Austerocardiophiles punctatus* (Szépligeti, 1913) (14–23: male lectotype, 24–25: male and female, 26: male): 14 = head in dorsal view, 15 = head in lateral view, 16 = clypeus, 17 = meso-scutum and scutellum in dorsal view, 18 = middle areola of propodeum, 19 = hind femur, 20 = claw, 21 = distal part of right forewing, 22 = first discal cell, 23 = tergites 1–3, 24 = hind femur, 25–26 = first tergite

Distribution – Throughout Ethiopian region.

Taxonomic position – *Austerocardiochiles punctatus* (Szépligeti) is close to *A. enderleini* (Szépligeti) viewing their distinctly sculptured (rugose, rugulose, confused rugo-rugulose) head and mesosoma and latero-tergite clearly separated. The two species are differentiated as follows:

- 1 (2) Temple in dorsal view contracted (Fig. 14). Clypeus 1.6 times as wide as high, its lower edge medially very weakly excised (Fig. 16). Hind femur 2.6–3.1 times as long as broad (Fig. 19). Forewing: pterostigma 2.8 times as long as wide, second submarginal cell long, 3–SR 1.7 times as long as 2–SR, SR1 with nebulous 3r (Fig. 21, see arrow). First discal cell fairly less high: 1–M straight and almost 3 times as long as *m-cu* (Fig. 22). Body with strong sculpture. Body yellow, antenna, ocellar field, three maculae of mesoscutum black. ♂♀: 5.5–6 mm. – Throughout Ethiopian region *A. punctatus* (Szépligeti, 1913), comb. n.
- 2 (1) Temple in dorsal view swollen (Fig. 1). Clypeus twice as wide as high, its lower edge medially somewhat produced and here with a pair of denticles (Fig. 3). Hind femur 2.4–2.5 times as long as broad (Figs 7, 13). Forewing: pterostigma 3.6 times as long as wide, second submarginal cell less long, 3–SR 1.5 times as long as 2–SR, SR1 without 3r (Fig. 9). First discal cell fairly high: 1–M curved and 3.3 times as long as *m-cu* (Fig. 10). Body with rather weak sculpture. Body black, mesosoma testaceous. ♂♀: 6.5–8 mm. – Kenya, Tanzania *A. enderleini* (Szépligeti, 1908)

Cardiochiles Nees

Cardiochiles Nees, 1818: 307 (description, no species). – Type species: *Ichneumon saltator* Fabricius, 1781 (designated by VIERECK 1914: 28). SHENEFELT 1973: 785 (literature up to 1967).

Taxonomic position – Differs from all other cardiochiline genera by the combination of the following characters: Eye (at least dispersely) setose. Galea broad. Tergites usually polished; lateral suture of first tergite less defined. Ovipositor sheath long, usually about as long as hind tibia; hypopygium medio-longitudinally membranous (i.e. weakly sclerotised). Colour either black(ish) with few yellow, reddish yellow pattern, or fully yellow, reddish yellow (possibly with little dark coloured pattern). – Species of this genus are distributed in the Old and New Worlds (DANGERFIELD *et al.* 1999: 936–938).

Cardiochiles (*Cardiochiles*) *fuscipennis* Szépligeti (Figs 29–39)

Cardiochiles fuscipennis Szépligeti, 1900: 60 ♂♂ (type series: 3 males and 1 female). – SZÉPLIGETI 1902: 77 (in key). ENDERLEIN 1906: 246 (in key). SHENEFELT 1973: 791 (literature up to 1904, male lectotype designated by Papp). DANGERFIELD & AUSTIN 1995: 390 (in key) and 411 (unnecessary male lectotype designation, 1 female paralectotype designation, distribution, redescription). DANGERFIELD *et al.* 1999: 936 (in checklist). PAPP 2004: 185 (2 male paralectotypes designation, details type localities, types condition). – SZÉPLIGETI (1900: 60) described his *C. fuscipennis* on the basis of 3 male and 1 female (syntype) specimens. PAPP (in SHENEFELT 1973:

791) designated the male lectotype. DANGERFIELD & AUSTIN's (1995: 411) type designation is incomplete: 2 male paralectotypes were not designated which was done by PAPP (2004: 185).

Cardiochiles fasciatus Szépligeti, 1900: 60 ♂ (type series: 2 females and 1 male). SZÉPLIGETI 1902: 77 (in key as valid species). ENDERLEIN 1906: as valid species 246 (in key) and 250 (additional features). SHENEFELT 1973: 790 (as valid species, literature up to 1906). DANGERFIELD & AUSTIN 1995: 411 (as new synonym of *C. fuscipennis*). PAPP 2004: 185 (type locality, female lectotype and 1 female + 1 male paralectotypes designation and type conditions, synonym of *C. fuscipennis*).

For further four synonymous names see DANGERFIELD & AUSTIN (1995: 411).

Lectotype labels of Cardiochiles fuscipennis – (First label, printed) “N. Guinea / Biró 96”; (second label, printed) “Friedrich-Wilhel.-hafen”; third label is the lectotype card; fourth label is with the inventory number “766”.

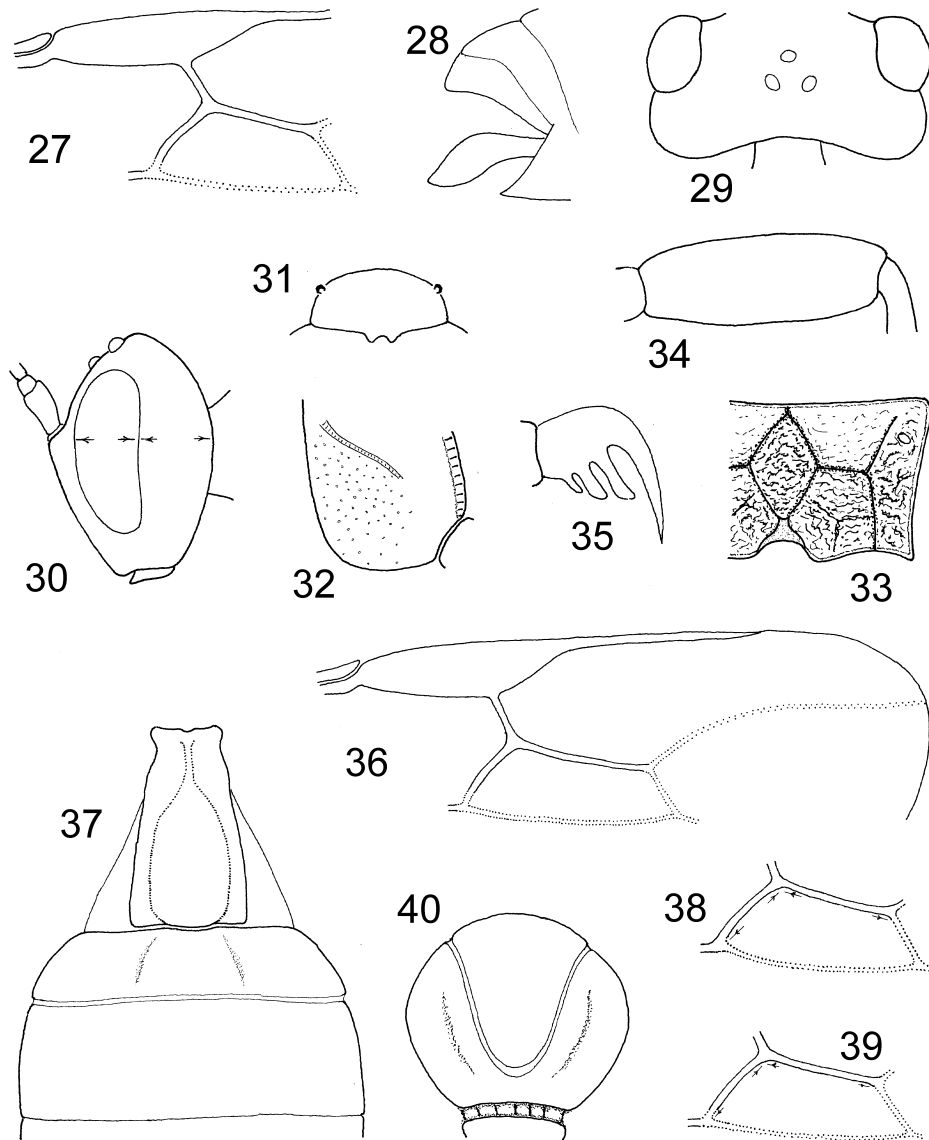
Male lectotype of Cardiochiles fuscipennis – (Additional features to the re-description by DANGERFIELD & AUSTIN 1995.) Body length 6.5 mm. Antenna as long as body and with 38 antennomeres. First flagellomere 1.6 times as long as broad, last 14–15 flagellomeres cubic. Head in dorsal view transverse (Fig. 29), twice as broad as long, eye somewhat protruding and slightly longer than temple (16:14), temple moderately rounded. Ocelli middle-sized, nearly round, OOL clearly twice longer than POL. Eye with dense and long pilosity, in lateral view 2.4 times as high as wide, temple just wider than eye (16:14) and ventrally narrowing (Fig. 30, see arrows). Clypeus twice as wide as high, its lower edge medially slightly produced and here with a pair of denticles (Fig. 31). Rostrum short, half as long as height of eye. Head polished and pilose.

Mesosoma in lateral view 1.5 times as long as high. Notaulix evenly deep. Precoxal suture narrow and subcrenulated, mesopleuron dorsally from suture polished, ventrally from suture finely hairpunctate (Fig. 32). Propodeum carinated and rugo-rugulose, above lunule with a diamond-shaped areola (Fig. 33). Hind femur 2.6 times as long as broad, longitudinally subparallel (Fig. 34). Claw with thick pectinulates (Fig. 35).

Forewing as long as body. Pterostigma (Fig. 36) 3.6 times as long as wide and issuing *r* distally from its middle, *r* just shorter than width of pterostigma (10:11). Second submarginal cell rather narrow: 3–SR 1.75 times as long as 2–SR, both veins almost straight, SR1 faintly S-like. First discal cell: 1–SR–M 1.5 times as long as 1–M (cf. Fig. 10).

First tergite 1.6 times longer than broad posteriorly, third tergite twice longer than second tergite (Fig. 37).

Body and antenna black. Palpi brownish to yellowish. First tergite basally rusty. Legs black with light coloured pattern. Fore femur apically and tibia + tarsus entirely yellow; middle tibia and basitarsus dark rusty, tarsus brownish yellowish. Wings evenly brown fumous, pterostigma blackish brown, veins dark brown to brownish.



Figs 27–40. *Austrocardiochiles punctatus* (Szépligeti, 1913) (female): 27 = pterostigma and second submarginal cell of forewing, 28 = posterior end of metasoma. – *Cardiochiles (Cardiochiles) fuscipennis* Szépligeti, 1900 (29–37: male lectotype, 38–39: female and male): 29 = head in dorsal view, 30 = head in lateral view, 31 = clypeus, 32 = mesopleuron with precoxal suture, 33 = propodeum, 34 = hind femur, 35 = claw, 36 = distal part of right forewing, 37 = tergites 1–3, 38–39 = second submarginal cell. – *Cardiochiles (Cardiochiles) philippensis* Ashmead, 1905: 40 = mesoscutum with notaulix (female)

Two male paralectotypes of Cardiochiles fuscipennis – Body length 6.5–7 mm. Pair of antennae missing (1 ♂) and only left antenna missing, right antenna deficient (1 ♂): with 13 antennomeres. Legs more dark coloured; fore femur apically and tibia + tarsus yellow (1 ♂) or the same leg parts yellowish brown; middle and hind legs blackish to black (“var.” by Szépligeti). – Localities: 1 ♂ paralectotype (No. 768): Papua New Guinea, Stephansort, Astrolabe Bay, 1897, leg. L. Bíró. 1 ♂ paralectotype (No. 769): Papua New Guinea, Astrolabe Bay, Erima, 1896, leg. L. Bíró.

Four male specimens of Cardiochiles fuscipennis – Body length 5 mm. Antenna with 36 (1 ♂) antennomeres. Forewing: second submarginal cell short, 3–SR 1.3–1.4 times as long as 2–SR (Figs 38–39). – Localities: 1 ♂ (metasoma missing): Papua New Guinea, Stephansort, Astrolabe Bay, 22 XII 1899, leg. L. Bíró. 1 ♂: Papua New Guinea, Berlinhaven, Lemien, 1896, leg. Bíró. 1 ♂: Papua New Guinea, Brown river, 40 km N of Port Moresby, 6–8 IV 1965, leg. J. Balogh et J. J. Szent-Ivány. 1 ♂: Australia, Northern Territory, Mt. Bundey, 144 m, 13° 13' S / 131° 08' E, 4–7 XI 2000, leg. G. Hangay, A. Podlussány et I. Rozner. (All specimens in HNHM.)

Female paralectotype of Cardiochiles fuscipennis – Head missing. Hypopygium pointed, medio-longitudinally desclerotized and creased, ovipositor sheath long, as long as hind tarsomeres 1–3 combined (Fig. 41). – Locality: female paralectotype (No. 767): Papua New Guinea, Friedrich-Wilhelmshaven (= Madang), 1896, leg. L. Bíró (in HNHM).

Female lectotype and one female paralectotype of Cardiochiles fasciatus – Similar to the male lectotype of *C. fuscipennis*. Body 6 mm (lectotype) and 5 mm (paralectotype) long. Antenna with 38 antennomeres (lectotype). Notaulix on mesoscutum evenly deep (cf. Fig. 40). Forewing: pterostigma 4 times as long as wide, r shorter than width of pterostigma (8:10), 3–SR 1.3–1.4 times as long as 2–SR (Figs 38–39). Ovipositor sheath fairly long, as long as hind basitarsus + half of second tarsomere (lectotype, Fig. 42). Wings subhyaline, apically fumous (paralectotype). – Localities: female lectotype (No. 771): Papua New Guinea, Friedrich-Wilhelmshaven (= Madang), 1896, leg. L. Bíró. Female paralectotype (No. 772): Papua New Guinea, Lemien, IX.1896, leg. L. Bíró. (Both types in HNHM.)

Male paralectotype of Cardiochiles fasciatus – Quite similar to the male types of *C. fuscipennis*.

Host – *Crocidolomia binotalis* Zeller, 1852 (Lepidoptera: Pyralidae).

Distribution – Australia (Northern Territory), Bismarck Archipelago, Indonesia, New Britain, Papua New Guinea, Solomon Islands (DANGERFIELD & AUSTIN 1995: 411).

Taxonomic position – *Cardiochiles fuscipennis* is nearest to *C. philippensis* (ASHMEAD 1905: 118) considering their black corporal colour, long ovipositor sheath and absent epicnemial carina; the distinctive features between the two species are as follows:

- 1 (2) Temple in dorsal view rounded, eye somewhat protruding (Fig. 29). Notaulix (finely) crenulated (*cf.* Fig. 120). Pectinulate of claw short and “perpendicular” (Fig. 35). Scutum of first tergite elongate-form, third tergite almost twice as long as second tergite (Fig. 37). ♀♂: 5–6.5 mm. – Indo-Australian region *C. (C.) fuscipennis* Szépligeti, 1900
- 2 (1) Temple in dorsal view less rounded, eye not protruding (Fig. 43). Notaulix smooth (Fig. 40). Pectinulate of claw long and “oblique” (Fig. 44). Scutum of first tergite less elongate form, third tergite 1.5 times as long as second tergite (Fig. 45). ♀♂: 5–5.5 mm. – Oriental region
..... *C. (C.) philippensis* Ashmead, 1905

Cardiochiles (Schoenlandella) niger Szépligeti
(Figs 46–54, 67)

Cardiochiles niger Szépligeti, 1914: 221 ♀♂ (female lectotype and one female + one male paralectotypes in ZMB, one female paralectotype in HHNM). – DE SAEGER 1948: 15 (in key) and 31 (redescription and setting up two “races”, *calcaratus* and *nigerrimus*). SHENEFELT 1973: 794 (literature up to 1948). HUDDLESTON & WALKER 1988: 443 (in key) and 448 (redescription).

Schoenlandella niger (Szépligeti, 1914): DANGERFIELD *et al.* 1999: 957 and 975 (comb. n.).

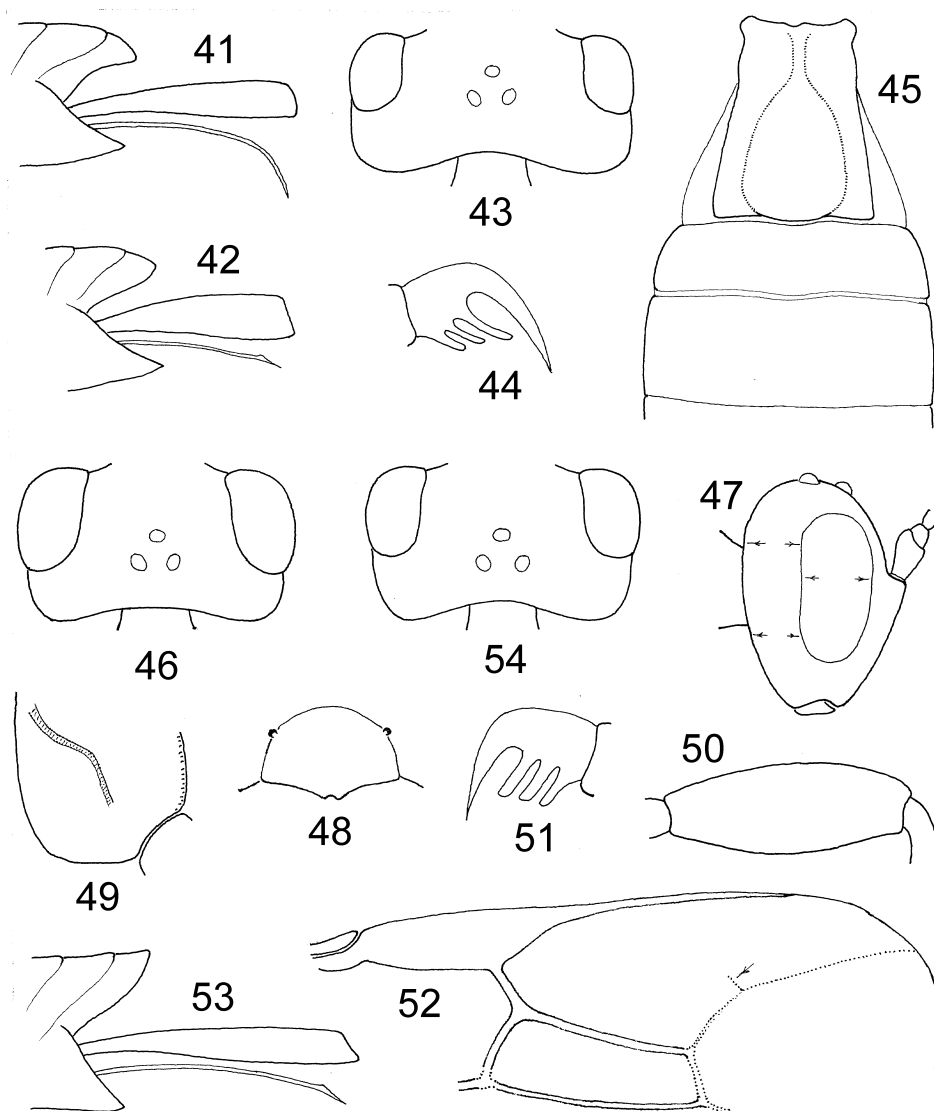
Paralectotype labels – (First label, printed) “Span. Guinea / Alcu Benitogbt. [= Gebiet] 1–5 IX [19]06 / G. Teßman S. G.”; (second label, printed) “Equatorial Guinea”; third label is the paralectotype card; fourth label, close below paralectotype card, is with Szépligeti’s original name and handwriting “Cardioh. niger Sz.”; fifth label is with the inventory number 12136.

Female paralectotype – (Additional features to the redescription by HUDDLESTON & WALKER 1988.) – Body length 5.5 mm. Antenna somewhat shorter than body (5 mm), with 35 antennomeres. First flagellomere 2.5 times as long as broad, further 13–14 flagellomeres diminishing so that rest of flagellomeres cubic. – Head in dorsal view less transverse (Fig. 46), 1.8 times as broad as long, eye 2.2 times longer than temple, temple rounded. Ocelli middle-sized, OOL 3 times as long as POL (14:4). Clypeus 1.5 times as wide as high, its lower edge produced and with a pair of denticles (Fig. 48). Eye pilose, in lateral view 1.9 times as high as wide and 1.7 times wider than temple (Fig. 47, see arrows). Rostrum as long as height of eye. Head polished.

Mesosoma in lateral view 1.5 times as long as high, polished. Precoxal suture S-form, narrow, crenulated (Fig. 49). Hind femur 2.6 times as long as broad medially (Fig. 51).

Forewing as long as body. Pterostigma (Fig. 52) 3.6 times as long as wide, *r* just shorter than width of pterostigma (10:11). Second submarginal cell long: 3–*SR* 2.5 times as long as 2–*SR*, both veins weakly bent; *SR*1 angled, its vein 3*r* short and hardly visible (“nebulous”, Fig. 52, see arrow). First discal cell: 1–*SR*–*M* 1.8 times as long as 1–*M*, 1–*M* 2.5 times longer than *m*–*cu* (*cf.* Fig. 22).

First tergite 1.3 times as long as broad posteriorly, scutum narrow, margin laterally from scutum wide; third tergite 1.5 times longer than 2nd tergite (Fig.



Figs 41–54. *Cardiochiles (Cardiochiles) fuscipennis* Szépligeti, 1900 (41: female paralectotype, 42: female lectotype of *C. fasciatus* Szépligeti, 1900): 41–42 = hind end of metasoma. – *Cardiochiles (Cardiochiles) philippensis* Ashmead, 1905 (female and male): 43 = head in dorsal view, 44 = claw, 45 = tergites 1–3. – *Cardiochiles (Schoenlandella) niger* Szépligeti, 1914 (46–52: female paralectotype, 53–54: female): 46 = head in dorsal view, 47 = head in lateral view, 48 = clypeus, 49 = mesopleuron with precoxal suture, 50 = hind femur, 51 = claw, 52 = distal part of right forewing, 53 = hind end of metasoma, 54 = head in dorsal view

67). Hypopygium less pointed, rather truncate, ovipositor sheath as long as fore tibia, apically as in Fig. 53.

Body black. Mouthparts brownish yellow. Legs 1–2 black with yellow pattern, leg 3 black, tibia basally white. Wings hyaline, their distal third brownish fumous.

Three further female specimens – Body length 4.5–5 mm. Antenna with 32 (1 ♀) and 34 (1 ♀) antennomeres. Head in dorsal view 1.8–1.9 times as broad as long, eye 1.4 times longer than temple (Fig. 54). Hind femur 2.6–2.9 times as long as broad. Forewing: pterostigma 3–3.6 times as long as wide, 3–SR 2–2.7 times as long as 2–SR. Fore tibia + tarsus lemon yellow. – Localities: 1 ♀ (race *calcaratus* det. De Saeger): Congo belge (= Zaire), Kivu, Rutshuru, 1285 m, 11.VII.1935, leg. C. F. de Witte. 1 ♀: Cameroon, Nkoemvon, near Ebolova, 19.VIII – 25.IX.1979 (det. Walker et Huddleston 1988). 1 ♀: North Senegal, road Toll, 10.VIII.1989, leg. H. van der Valk (det. van Achterberg 1992). (All specimens in HNHM.)

Host unknown.

Distribution – Throughout Ethiopian region. Reported from nine countries by HUDDLESTON & WALKER (1988).

Taxonomic position – *Cardiochiles* (*Schoenlandella*) *niger* is nearest to *Cardiochiles* (*Cardiochiles*) *sahelensis* HUDDLESTON et WALKER (1988: 443 in key and 454 description) viewing their common features: long second submarginal cell, i.e. 3–SR 1.5–1.6 times (*C. sahelensis*) or (1.9–)2–2.3 times (*C. niger*) longer than 2–SR (Fig. 52), scutum of first tergite narrow (Figs 67, 70) and corporal colour partly (*C. sahelensis*) or entirely (*C. niger*) black; the two species are discriminated by the following key:

- 1 (2) Forewing: *SR1* weakly angled, its vein *3r* short and hardly visible (“nebulous”, subgeneric distinction, Fig. 52 see arrow). Temple in dorsal view rounded, eye (almost) twice as long as temple (Fig. 46). Hind femur less thick, 2.7–3.1 times as long as broad (Fig. 50). Scutum of first tergite not narrowing posteriorly, third tergite 1.5 times longer than second tergite (Fig. 67). Clypeus 1.5 times as wide as high, its lower edge somewhat produced and medially with a pair of denticles near to each other (Fig. 48). Pectinulate of claw strong (Fig. 51). Body black, fore and middle tibiae pale yellow to yellow pattern. ♂♂: 4.5–5.5 mm. – Throughout Ethiopian region *C. (Sch.) niger* Szépligeti, 1914
- 2 (1) Forewing: *SR1* bent, i.e. not angled and *3r* missing (subgeneric distinction, cf. Fig. 36). Temple in dorsal view less rounded, eye as long as temple (Fig. 68). Hind femur thick, 2.1–2.2 times as long as broad (Fig. 69). Scutum of first tergite narrowing posteriorly, third tergite 1.7 times longer than second tergite (Fig. 70). Clypeus 2.6–2.7 times as wide as high, its lower edge not produced, pair of denticles less near to each other (Fig. 71). Pectinulate of claw less strong (Fig. 72). Body bicoloured: head and mesosoma black, head possibly with testaceous to yellow pattern, metasoma yellow with variable black streak medially. ♂♂: 5–5.5 mm. – Niger, Senegal *C. (C.) sahelensis* Huddleston et Walker, 1988

Remarks – According to HUDDLESTON & WALKER (1988) *C. niger* is most closely related to *C. testaceus*. This is expressed in their key brought in pair the

two species in the key-couplets 9–10. An examination revealed that *C. sahelensis* is also near to *C. niger*.

C. sahelensis was transferred from the genus *Cardiochiles* to *Schoenlandella* Cameron, 1904 by DANGERFIELD *et al.* (1999: 959, 976). As an exchange material there are two female paratypes of *C. sahelensis* in the HHNM. Their examination revealed unambiguously that forewing vein *SR1* bent and no trace of *3r* is visible (*cf.* Fig. 36). Hence the species in question is representing the nominate subgenus as *C. (C.) sahelensis*.

Cardiochiles (Schoenlandella) szepligetii Enderlein
(Figs 55–64)

Cardiochiles testaceus Szépligeti, 1902: 77 ♂ (in key and description, male lectotype in HHNM). – PAPP 2004: 185 (type locality, lectotype designation and condition, valid name: *C. szepligetii*).

Cardiochiles szepligetii Enderlein, 1906: 252 (nom. n. for *C. testaceus* Szépligeti, 1902 nec KRIECHBAUMER, 1894: 62). – WATANABE 1934: 205 (♂ new), 1937: 144 (distribution). SHENEFELT 1973: 800 (literature up to 1937).

Schoenlandella szepligetii (Enderlein, 1906): DANGERFIELD *et al.* 1999: 959 and 976 (comb. n.).

Lectotype labels – (First label, printed) “Malacca” [= Malaysia] / “Biró”; (second label) “Kwala Lumpur” (printed) / [18]“98. I.” (handwritten, reverse of second label) “testaceus” (Szépligeti’s manuscript) / “det. Szépligeti” (printed); fourth label is the lectotype card; fifth label is with the inventory number “764”; sixth label is with the actual name *Cardiochiles (Schoenlandella) szepligetii* Enderlein.

Redescription of the male lectotype of Cardiochiles (Schoenlandella) testaceus Szépligeti – Body length 5 mm. Antenna nearly as long as body and with 40 antennomeres. First flagellomere 1.5 times as long as broad, further flagellomeres gradually diminishing so that penultimate flagellomere cubic: as long as broad. (Right antenna deficient: with 30 antennomeres.) – Head in dorsal view less transverse (Fig. 55), 1.8 times as broad as long, eye 1.5 times longer than temple, temple rounded, occiput excavated. Ocelli middle-sized, OOL clearly twice as long as POL. Eye pilose, in lateral view 2.1 times as high as wide, gena slightly wider than eye (16:15) and ventrally just narrowing (Fig. 56, see arrows). Clypeus 1.7 times as wide as high, its lower edge medially convex (Fig. 57); inner margin of eyes parallel, face almost 1.8 times wider than high. Rostrum about half as long as height of eye. Head polished.

Mesosoma in lateral view 1.3 times as long as high, polished. Notaulix distinct. Propodeum rugo-rugulose, medially with a diamond-shaped areola (Fig. 58). Hind femur 2.6 times as long as broad medially (*cf.* Fig. 50). Inner spur of hind tibia nearly as long as basitarsus (30:35). Claw downcurved, its basal lobe distinct and rather shortly pectinulate as in Fig. 59.

Forewing as long as body. Pterostigma (Fig. 60) 3.3 times as long as wide and issuing *r* distally from its middle. *1-R1* slightly longer than pterostigma (45:40). Vein *r* 0.6 times as long as width of pterostigma. Second submarginal cell: *3-SR* almost twice (27:14) as long as *2-SR*, *r-m* unusually "oblique", *SR1* broken, i.e. *3r* present as a "spectral trace" vein (Fig. 60, see arrow). First discal cell: *1-M* 2.8 times as long *m-cu*, *1-SR-M* 1.7 times as long as *1-M* (cf. Fig. 22).

First tergite (Fig. 61) 1.3 times as long broad posteriorly, scutum elongate-form. Third tergite almost twice longer than second tergite, suture between them straight. Tergites polished.

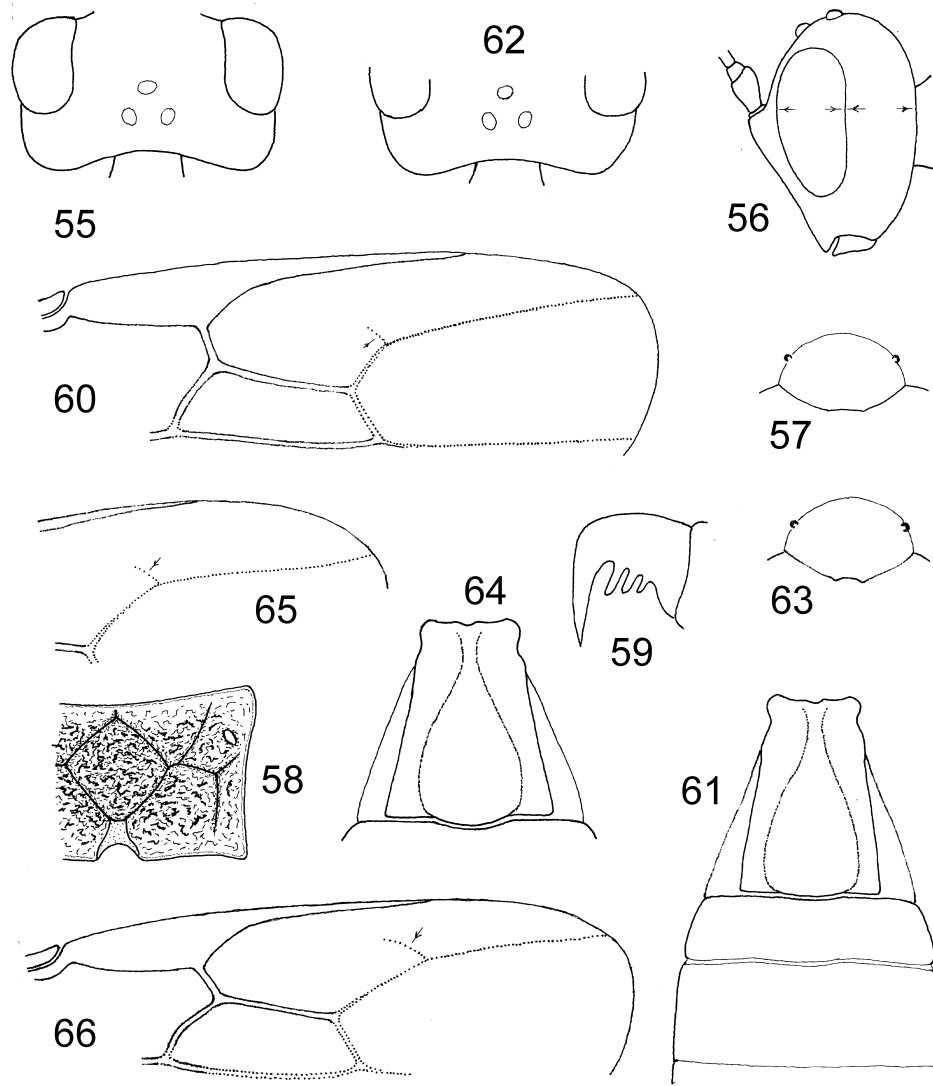
Antenna brown. Body and legs yellow, tarsi faintly brownish fumous. Wings subhyaline, i.e. weakly brownish fumous. Pterostigma brown, basally yellow, veins yellowish to brownish.

Description of the female (2 ♀♀) – Body 4.5–5 mm long. Antenna as long as head, mesosoma and tergite 1–2 combined. Head in dorsal view almost (60:31) to fully (60:30) twice as broad as long, temple slightly more rounded (Fig. 62). Clypeus: its lower edge medially weakly excised (1 ♀, Fig. 63). Notaulix evenly deep, subcrenulate. First tergite subquadrate, somewhat longer than broad posteriorly (40:35), its scutum less elongate-form (Fig. 64). Hypopygium not pointed, ovipositor sheath wide and somewhat longer than hind basitarsus to as long as tarsomeres 1–2 combined, or shorter than basitarsus. Body testaceous to yellow, hind tarsus black. – Locality (new to Australia): 1 ♀: Northern Territory, Mt. Bunday, 144 m, 13° 08' S / 131° 08' E, 4–7 November 2000, leg. G. Hangay, I. Rozner et A. Podlussány (Hungarian Entomological Expedition to Australia). 1 ♀: Indonesia, Java, Semarang, 1905, leg. E. Jacobson (*C. variegatus* det. Szépligeti).

Taxonomic position – *Cardiochiles* (*Schoenlandella*) *szepligetii* is nearest to *Cardiochiles* (*C.*) *variegatus* Szépligeti, the distinction of the two species is presented as follows:

- | | | |
|-------|--|--|
| 1 (2) | Forewing: <i>SR1</i> without <i>3r</i> (subgeneric difference, Fig. 80, see arrow), exceptionally present (1 ♀, Fig. 65, see arrow). Eye in dorsal view slightly longer than temple (Fig. 73). Propodeum: middle areola relatively less large, its less strong sculpture and carination as in Fig. 77. Scutum of first tergite as in Figs 82, 87. Clypeus with a pair of distinct denticles (Fig. 75). Female: hind femur thick, 1–2.1 (–2.3) times as long as broad (Figs 78, 88), exceptionally less thick as in Fig. 89. Ovipositor sheath usually short, as long as hind basitarsus (Fig. 83). ♂♂: 5–7 mm. – Frequent in tropical Africa | <i>C. (C.) variegatus</i> Szépligeti, 1913 |
| 1 (2) | Forewing: <i>SR1</i> with <i>3r</i> (sugeneric distinction, Fig. 60, see arrow). Eye in dorsal view 1.5 times longer than temple (Fig. 55). Propodeum: middle areola relatively large, its strong sculpture and carination as in Fig. 58. Scutum of first tergite as in Figs 61, 64. Clypeus with a pair of less distinct denticles (Figs 57, 63). Female: hind femur less thick, 2.6 times as long as broad (cf. Fig. 50). Ovipositor sheath long, as long as hind tarsomeres 1–2 combined. ♂♂: 4.5–5 mm. – Indo-Australian region | <i>C. (Sch.) szepligetii</i> Enderlein, 1906 |

Cardiochiles szepligetii is also near to *Hymenicis bubbur* (Dangerfield et Austin), the two species are differentiated by the following features:



Figs 55–66. *Cardiochiles (Schoenlandella) szepligetii* Enderlein, 1906 (55–61: male lectotype, 62–64: female): 55 = head in dorsal view, 56 = head in lateral view, 57 = clypeus, 58 = propodeum, 59 = claw, 60 = distal part of right forewing, 61 = tergites 1–3, 62 = posterior half of head in dorsal view, 63 = clypeus, 64 = first tergite. – *Cardiochiles (Cardiochiles) variegatus* Szépligeti, 1913 (male): 65 = SR1 of forewing with nebulous 3r. – *Cardiochiles (Schoenlandella) coelofrons* Huddleston et Walker, 1988 (female paratype): 66 = distal part of right forewing

- 1 (2) Female: hypopygium evenly sclerotized, i.e. apically not membranous (generic difference). Median field of second tergite wide, scutum of first tergite broadening posteriorly (Fig. 61, 64). Carinae of propodeal areola evenly strong (Fig. 58). Ovipositor sheath long, as long as hind tarsomeres 1–2 combined. Claw basally pectinulate as in Fig. 59. Clypeus 1.6–1.7 times and face 1.7–1.8 times as wide as high (Figs 57, 63). Body testaceous to yellow. $\varphi\sigma$: 4.5–5 mm. – Indo-Australian region *C. (Sch.) szepligetii* Enderlein, 1906
- 2 (1) Female: hypopygium apically membranous, i.e. here declerotized (generic difference). Median field of second tergite narrow, scutum of first tergite less broadening posteriorly; carinae of propodeum anteriorly weak (Fig. 16 in DANGERFIELD & AUSTIN 1995: 400). Ovipositor sheath short, about one-third as long as basitarsus (Fig. 18 l.c.). Claw “simple”. Clypeus 2.6–3.1 times and face 2.2–2.3 times as wide as high (Fig. 17 l.c.). Body orange to yellow with much black pattern. $\varphi\sigma$: 7.8–9.4 mm. – Australia (Queensland) *Hymenecis bubbur* Dangerfield et Austin, 1995

Cardiochiles (Cardiochiles) variegatus Szépligeti
(Figs 73–87)

Cardiochiles variegatus Szépligeti, 1913: 603 (female lectotype and one male paralectotype in HNHM). – DE SAEGER 1948: 16 (in key) and 38 (citation of original description). SHENEFELT 1973: 803 (literature up to 1948). HUDDLESTON & WALKER 1988: 443 (in key) and 455 (redescription). PAPP 2004: 185 (type locality, type designations and condition).

Schoenlandella variegata (Szépligeti, 1913): DANGERFIELD *et al.* 1999: 959 and 976 (comb. n.).

Lectotype labels – (First label, printed) “Africa or.” [=Tanzania] / “Katona” [= leg. K. Kittenberger]; (second label) “Shirati / 1909” (printed) “III.” (handwritten); third label, with Szépligeti’s manuscript) “*Cardiochiles variegatus* m.”; fourth label is the lectotype card; fifth label is with the inventory number “776”; sixth label is with the actual name *Cardiochiles (Cardiochiles) variegatus* Szépligeti (det. Papp 2014).

Paralectotype labels – First and second labels are identical with those of the lectotype; third label is the paralectotype card; fourth label is with the inventory number “777”; sixth label is with the actual name *Cardiochiles (Cardiochiles) variegatus* Szépligeti (det. Papp 2014).

Female lectotype – (Additional features to the redescription by HUDDLESTON & WALKER 1988.) Body length 6 mm. Antenna about 0.2 shorter than body and with 33 antennomeres. First flagellomere 1.6 times as long as broad, further 7–8 flagellomeres diminishing so that rest of flagellomeres cubic. – Head in dorsal view less transverse (Fig. 73), 1.8 times as broad as long. temple moderately rounded and somewhat shorter than eye (16:17). Ocelli rather small, almost round, OOL just less than three times as long as POL (14:5). Eye pilose, in lateral view 2.1 times as high as wide and 0.8 times as wide as gena, i.e. gena 1.2 times wider than eye, gena ventrally faintly narrowing (Fig. 74, see arrows). Clypeus 2.5 times as wide below as high medially, its lower edge truncate and medially with a pair of distinct denticles (Fig. 75). Inner margin of eyes parallel. Rostrum long,

as long as height of eye (Fig. 22 in HUDDLESTON & WALKER 1988: 449). Head polished, face and clypeus hairpunctate.

Mesosoma in lateral view 1.5 times as long as high. Notaulix deep, finely crenulated. Precoxal suture shallow, crenulated (Fig. 76). Areola and carination of propodeum distinct (Fig. 77). Hind femur thick, twice as long as broad (50:24, Fig. 78). Inner spur of hind tibia 0.8 times as long as basitarsus (24:30). Claw downcurved, its pectinulation as in Fig. 79.

Forewing as long as body. Pterostigma (Fig. 80) 2.8 times as long as wide, almost parallel-sided, issuing *r* distally from its middle, *r* short, 0.6 times as long as width of pterostigma (9:14); *1-R1* as long as pterostigma. Second submarginal cell: *3-SR* 1.7 times longer than *2-SR*, *r-m* less "oblique", *SR1* curved and without "spectral trace" *3r* (Fig. 80, see arrow). First discal cell *long1-M* 2.8 times as long as *m-cu*, *1-SR-M* twice as long as *1-M* (Fig. 81).

First tergite (Fig. 82) 1.25 times as long as broad posteriorly, its scutum wide but narrowing at rear; third tergite 1.7 times longer than second tergite, suture between them straight. Tergites polished. Hypopygium large, not pointed; ovipositor sheath as long as hind tarsomeres 1–2 combined, widening and feebly bent (Fig. 83).

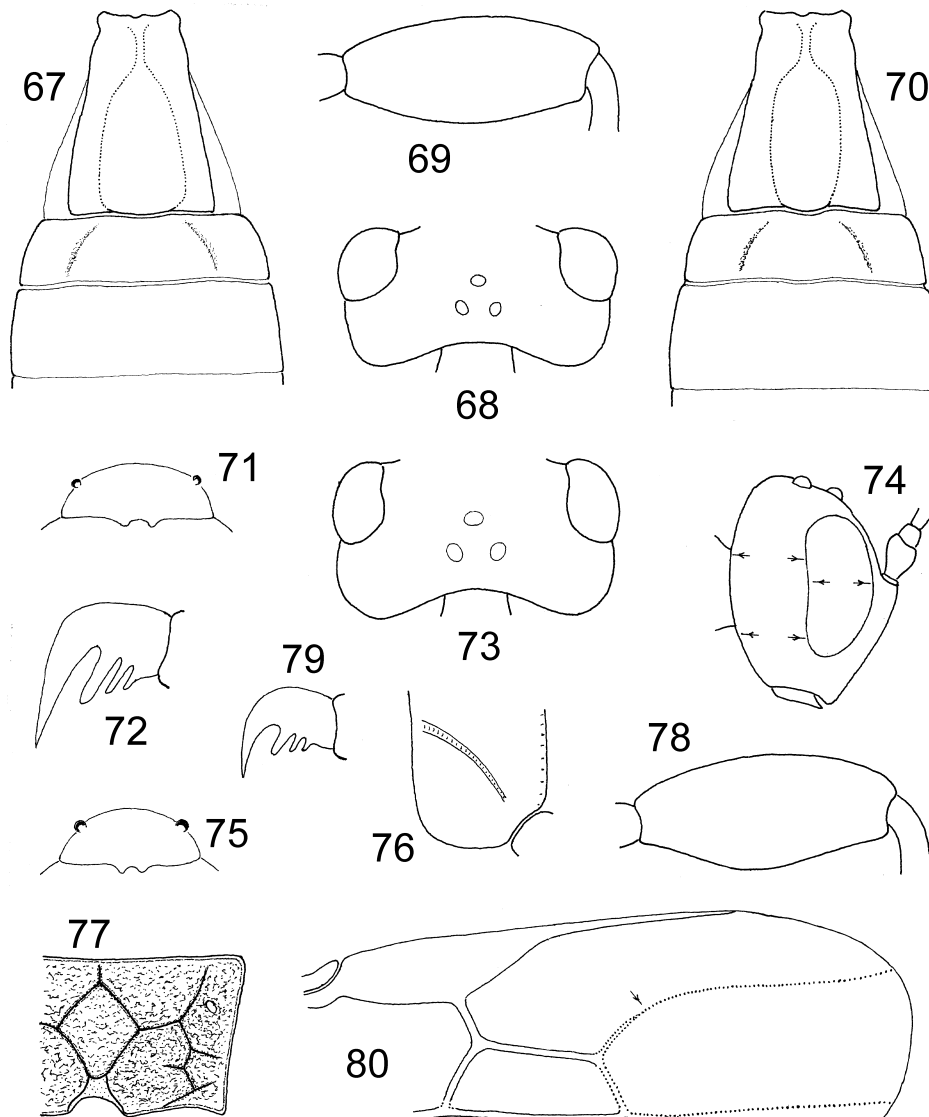
Ground colour of body yellow. Scape black, flagellum blackish. Black: vertex, three lobes of mesoscutum almost entirely, mesopleuron, mesosternum and ovipositor sheath. Legs yellow, hind coxa basally black, hind tarsus blackish. Wings infumate, pterostigma basally yellow, distally brown, veins yellowish.

Two further females – Body length 6 mm. Antenna with 30 (1 ♀) and 33 (1 ♀) antennomeres. Head in dorsal view twice as broad as long (1 ♀), eye slightly longer than temple (17:15). Hind femur 2.1–2.3 times as long as broad (Fig. 84). Mesopleuron yellow, black pattern of head and mesoscutum smaller. – Localities: 1 ♀: "Africa or." (= Tanzania), "Shirati, III 1919, leg. Katona" [K. Kittenberger], new to Tanzania. 1 ♀: Egypt, Ismelia, 10.V.1984, leg. J. H. Parker, new to Egypt. (Both females in HNHM.)

Male paralectotype – Body length 6 mm. Antennae deficient: right antenna with 3 and left antenna with 16 antennomeres. Hind femur less thick, 2.7 times as long as broad (Fig. 85). Pterostigma 2.3 times as long as wide, *3-SR* 1.5 times as long as *2-SR* (Fig. 86). First tergite 1.3 times as long as broad posteriorly. – Locality: "Africa or." (= Tanzania), "Shirati III 1919, leg. Katona" [= K. Kittenberger].

One further male – Similar to male paralectotype. Body length 6 mm. Antenna deficient: right antenna with 32 and left antenna with 29 antennomeres. Head in dorsal view 1.8 times as broad as long, temple somewhat longer than eye (18:15). Hind femur 2.3 times as long as broad. Pterostigma wide, 2.5 times as long as wide, *r* half as long as width of pterostigma, *3-SR* 1.7 times as long as *2-SR*; *1-R1* one-fifth longer than pterostigma (50:40), *3r* exceptionally present as "spectral trace" vein (Fig. 65 see arrow). Scutum of first tergite broad, first tergite

1.35 times as long as broad posteriorly (40:29). – Locality: 1 ♂: “Abyssinia” (= Ethiopia) “Jerrer-völgy” (= valley) “10 VII 1911, leg Kovács”, new to Ethiopia.

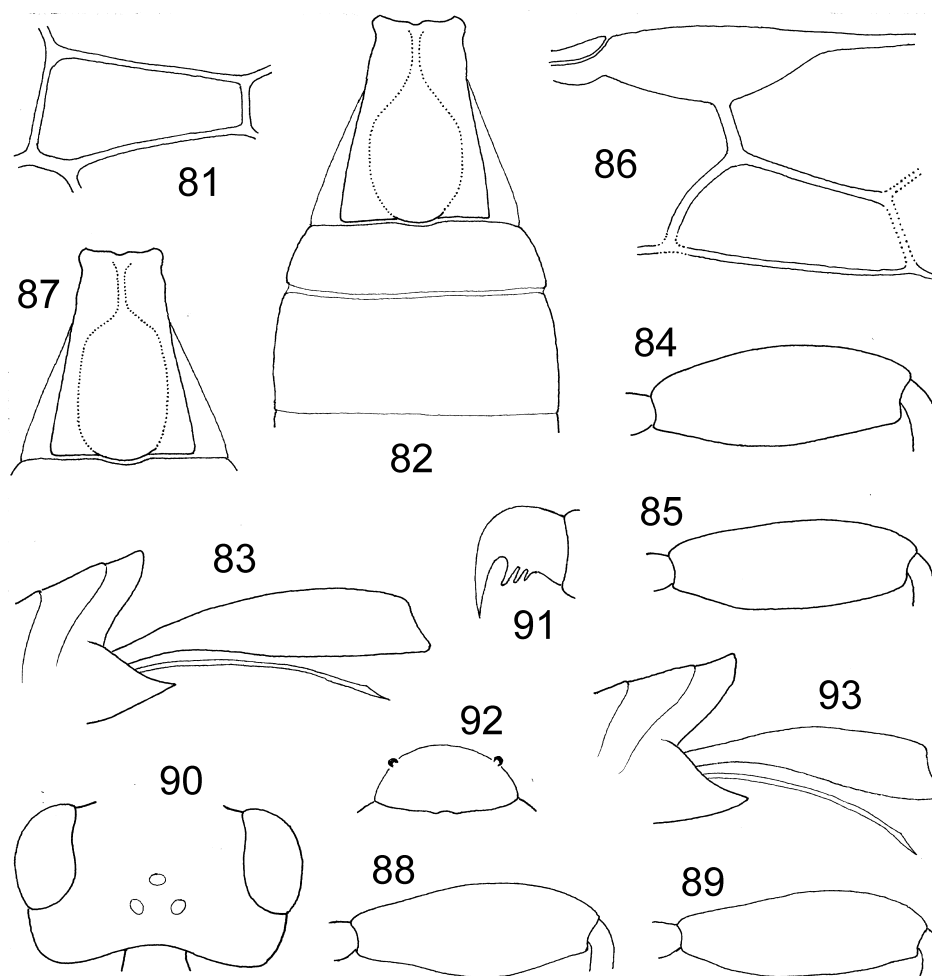


Figs 67–80. *Cardiochiles (Schoenlandella) niger* Szépligeti, 1914 (female paralectotype): 67 = tergites 1–3. – Figs 68–72. *Cardiochiles (Cardiochiles) sahelensis* Huddleston et Walker, 1988 (female paratype): 68 = head in dorsal view, 69 = hind femur, 70 = tergites 1–3, 71 = clypeus, 72 = claw. – *Cardiochiles (Cardiochiles) variegatus* Szépligeti, 1913 (female lectotype): 73 = head in dorsal view, 74 = head in lateral view, 75 = clypeus, 76 = mesopleuron with precoxal suture, 77 = propodeum with median areola, 78 = hind femur, 79 = claw, 80 = distal part of right forewing

Host – *Helicoverpa armigera* (Hübner, [1809]) (Lepidoptera: Noctuidae).

Distribution – Egypt, Gambia, Mali, Nigeria, Senegal, Sierra Leone, Tanzania.

Taxonomic position – *Cardiochiles* (*Cardiochiles*) *variegatus* is similar to *Cardiochiles* (*Schoenlandella*) *testaceus* Kriechbaumer (nec *C. testaceus* Szépligeti).



Figs 81–93. *Cardiochiles* (*Cardiochiles*) *variegatus* Szépligeti, 1914 (81–83: female lectotype, 84: female, 85–87: male paralectotype): 81 = first discal cell, 82 = tergites 1–3, 83 = posterior end of metasoma, 84 = hind femur, female, 85 = hind femur, male paralectotype, 86 = pterostigma and second submarginal cell of right forewing, 87 = first tergite. – *Cardiochiles* (*Schoenlandella*) *testaceus* Kriechbaumer, 1894 (female and male): 88–89 = hind femur, 90 = head in dorsal view, 91 = claw, 92 = clypeus, 93 = posterior end of female metasoma

geti) considering their testaceous corporal ground colour, antenna with 30–37(–40) antennomeres, relatively short second submarginal cell (i.e. 3–SR 1.5–1.7 times as long as 2–SR); the two species are distinguished by the following features:

- 1 (2) Forewing: *SRI* without “nebulous” *3r* (subgeneric difference, Fig. 80 see arrow), at most exceptionally with *3r* (Fig. 65, see arrow). Hind femur of female thick, 2–2.3 times as long as broad (Figs 78, 84), hind femur of male less thick: 2.7 times as long as broad (Fig. 85). Claw basally not broad, pectination not short (Fig. 79). Pair of median denticles of clypeus distinct (Fig. 75). Ovipositor sheath 1.4–1.6(–2) times longer than hind basitarsus (Fig. 83). Body testaceous to yellow, vertex and mesosoma rather exceptionally with little black pattern. ♂♂: 5–7 mm. – Frequent in tropical Africa *C. (C.) variegatus* Szépligeti, 1913
- 2 (1) Forewing: *SRI* with a “nebulous” *3r* (subgeneric difference, cf. Fig. 66 see arrow). Hind femur of female less thick, 2.5–2.7 times as long as broad (Fig. 88–89). Temple in dorsal view rounded (Fig. 90). Claw basally broad, pectination short (Fig. 91). Clypeus medially rather faintly excised (Fig. 92). Ovipositor sheath at most as long as hind basitarsus (Fig. 93). Body yellow to testaceous, vertex and mesosoma possibly with (much) black pattern. ♂♂: 4–5 mm. – Frequent in tropical Africa *C. (Sch.) testaceus* Kriechbaumer, 1894

Cardiochiles variegatus is also near to *C. coelofrons* HUDDLESTON et WALKER (1988: 443 in key, 444 description) considering their common features: clypeus medially with a pair of distinct denticles (Fig. 75), head in dorsal view less transverse: 1.8–1.9 times as broad as long (Fig. 73), body yellow to testaceous; distinction between the two species is keyed:

- 1 (2) Forewing: *SRI* without “nebulous” *3r* (subgeneric difference, Fig. 80 see arrow), at most exceptionally with *3r* (Fig. 65 see arrow). Rostrum long, as long as height of eye (Fig. 22 in HUDDLESTON & WALKER 1988: 449). Hind femur thick, 2–2.3 times as long as broad (Figs 78, 84–85). Scutum of first tergite broad, side laterally from scutum narrow, third tergite 1.7 times longer than second tergite (Fig. 82). Temple in dorsal view less rounded, eye not protruding (Fig. 73). Claw somewhat less downcurved (Fig. 79). Antenna with 30–33(–40) antennomeres. Pterostigma blackish brown, basally yellow. ♂♂: 5–7 mm. – Frequent in tropical Africa *C. (C.) variegatus* Szépligeti, 1913
- 2 (1) Forewing: *SRI* with a “nebulous” *3r* (subgeneric difference, Fig. 66 see arrow). Rostrum short, shorter than half height of eye (Fig. 8 in HUDDLESTON & WALKER 1988: 445). Hind femur less thick, 2.6 times as long as broad (Fig. 94). Scutum of first tergite narrow, subparallel-sided, side laterally from scutum wide, third tergite 1.5 times longer than second tergite (Fig. 95). Temple in dorsal view rounded, eye somewhat protruding (Fig. 96). Claw somewhat more downcurved (Fig. 97). Antenna with 44–48 antennomeres. Pterostigma fully yellow to pale brown. ♂♂: 5–6 mm. – Gambia, Mali, Nigeria, Senegal, Sierra Leone *C. (Sch.) coelofrons* Huddleston et Walker, 1988

Remarks – One female paratype of *C. coelofrons* is housed by exchange in the HNHM, this specimen served for the compilation of the above key. *C. variegatus* is also near *C. szepligetii*, their distinction see at the latter species.

Cardiochiles (Cardiochiles) xanthocarpus Szépligeti
(Figs 99–107)

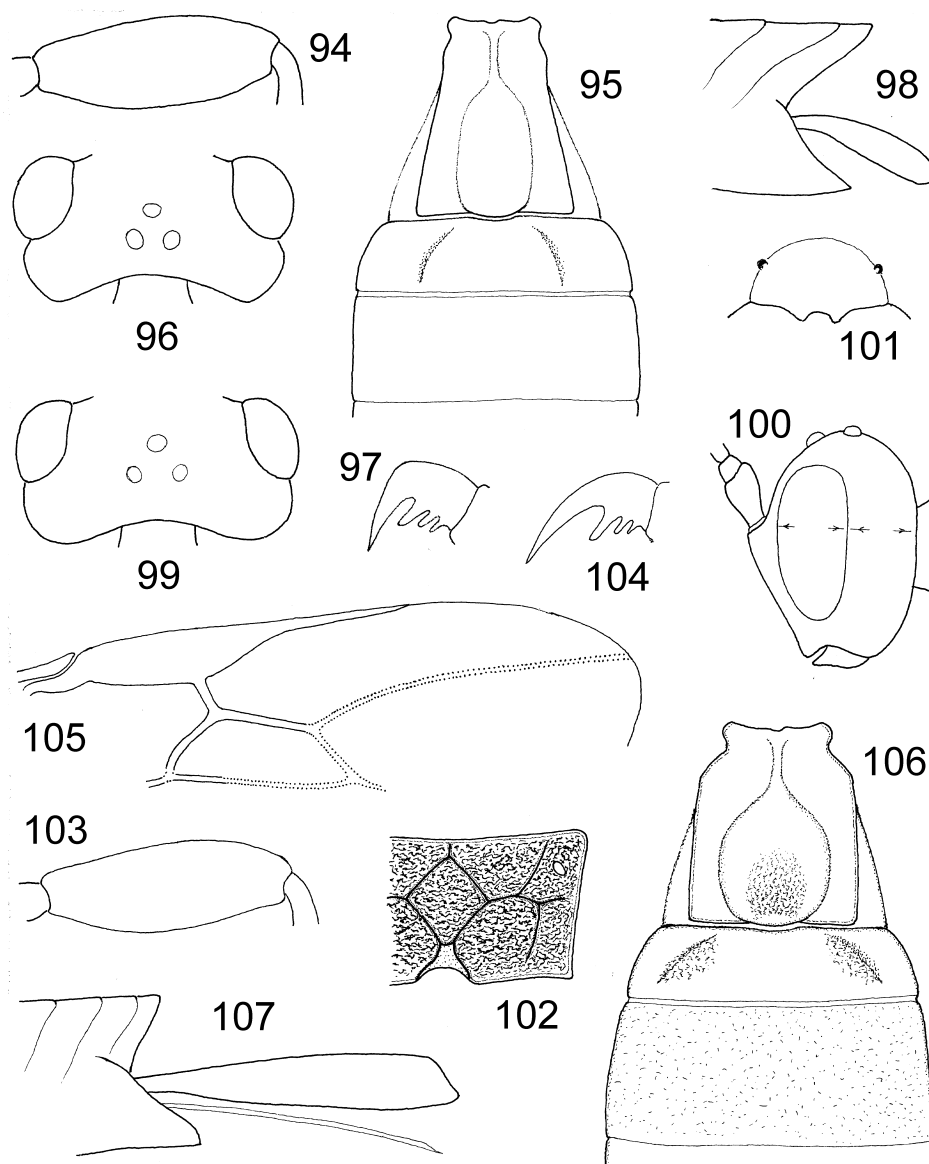
Cardiochiles xanthocarpus Szépligeti, 1913: 604 ♀ (female lectotype in HHNM). – DE SAEGER 1948: 16 (in key) and 34 (citation of original description, distribution). SHENEFELT 1973: 804 (literature up to 1948). HUDDLESTON & WALKER 1988: not included. PAPP 2004: 186 (type locality, lectotype designation and condition). DANGERFIELD *et al.* 1999: 966 (as “species incertae sedis”).

Lectotype labels – (First label, printed) “Africa or. / Katona” [= K. Kittenberger], “Shirati / 1900” (printed) “III.” (handwriting); (third label reverse second label, printed) “Tanzania”; fourth label is the lectotype card; fifth label is with inventory number “775”; (sixth label: reverse fifth label with Szépligeti's handwriting) “Cardioch. xanthocarp. n. sp.”

Redescription of the female lectotype – Body length 5 mm. Antenna almost as long as body and with 31 (right antenna) and 22 (left antenna) antennomeres. Both antennae apically deficient. First flagellomere 1.25 times as long as broad, flagellomeres 2–5 diminishing, rest of flagellomeres cubic. – Head in dorsal view transverse (Fig. 99), twice as broad as long, eye 1.3 times longer than temple, temple rounded, occiput excavated. Frons not depressed. Eye pilose, in lateral view 2.2 times as high as wide and as wide as temple, i.e. temple evenly wide beyond eye (Fig. 100, see arrows). Ocelli almost round and on a high triangle, OOL 1.6 times as long as POL, fore ocellus somewhat greater than hind two ocelli. Face twice as wide as high. Lower edge of clypeus with a pair of denticles fairly far from each other, clypeus itself 1.9 times as wide below as high medially (Fig. 101). Rostrum one-fourth shorter than height of eye. Frons transversely finely striate, face hairpunctate, clypeus, gena and vertex (almost) smooth, shiny.

Mesosoma stout, in lateral view 1.2 times as long as high. Notaulix evenly deep, smooth. Mesoscutum and scutellum smooth, shiny. Pronotum (sub)rugulose, propodeum rugose with distinct carination (Fig. 102). Precoxal suture fairly wide, mesopleuron above suture smooth and shiny, below suture densely hairpunctate, subshiny (*cf.* Figs 122, 127). Hind femur 2.9 times as long as broad proximally (Fig. 103). Claw moderately curved, basal lobe small, pectination short (Fig. 104).

Forewing as long as body. Pterostigma (Fig. 105) 3.6 times as long as wide, issuing *r* distally from its middle and 0.6 times as long as width of pterostigma, *1-R1* one-fourth shorter than length of pterostigma (40:30). Second submarginal cell short: *3-SR* 1.35 times as long as *2-SR*, *r-m* fairly “oblique”, *SR1* moderately bent and without *3r*. *1-R1* one-fourth shorter than length of pterostigma. First discal cell: *1-M* 2.2 times as long as *m-cu*, *1-SR-M* 1.8 times as long as *1-M* (*cf.* Fig. 81).



Figs 94–107. *Cardiochiles (Schoenlandella) coelofrons* Huddleston et Walker, 1988 (female paratype): 94 = hind femur, 95 = tergites 1–3, 96 = head in dorsal view, 97 = claw, 98 = posterior end of metasoma. – *Cardiochiles (Cardiochiles) xanthocarpus* Szépligeti, 1913 (female lectotype): 99 = head in dorsal view, 100 = head in lateral view, 101 = clypeus, 102 = propodeum, 103 = hind femur, 104 = claw, 105 = distal part of right forewing, 106 = tergites 1–3, 107 = posterior end of metasoma

First tergite (Fig. 106) just longer than broad posteriorly, beyond pair of spiracles parallel-sided, scutum medio-longitudinally uneven, otherwise smooth and shiny. Third tergite almost twice as long as second tergite, second tergite laterally subrugulose, medially smooth, third tergite uneven, shiny; rest of tergites polished. Hypopygium large, apically blunt, ovipositor sheath wide, as long as fore tibia (Fig. 107).

Ground colour of body dark brown to black with light coloured pattern. Antenna brownish black. Inner margin of eye reddish yellow. Rostrum dark brown, palpi reddish yellow. Pronotum reddish yellow, mesoscutum + scutellum testaceous, propodeum brown. First tergite laterally reddish yellow. Legs 1–2: coxae + trochanters dark brown, rest of legs yellow; leg 3: coxa + femur dark brown, tibia + tarsus blackish. Wings proximally hyaline, apically brownish fumes.

Male and host unknown.

Distribution – Tanzania.

Taxonomic position – In HUDDLESTON & WALKER's key (1988: 443–444) this species would run to *C. calvus* HUDDLESTON et WALKER. It is nearest to *C. coelofrons* HUDDLESTON et WALKER considering their common features: transverse head in dorsal view, thick hind femur, eye longer than temple in dorsal view; the two species are distinguished by the following features:

- 1 (2) Forewing: *SR1* without *3r* (subgeneric difference), second submarginal cell short, *3-SR* 1.35 times as long as *2-SR* (Fig. 105). Frons not depressed, transversely striolate. Rostrum long, nearly as long as height of eye. First tergite parallel-sided, scutum broad (Fig. 106). Ovipositor sheath wide and long, as long as fore tibia (Fig. 107). Ground colour of body dark brown to black with a few yellow to reddish yellow pattern. ♀: 5 mm. – Tanzania *C. (C.) xanthocarpus* Szépligeti, 1913
- 2 (1) Forewing: *SR1* with “nebulous” *3r* (subgeneric difference), second submarginal cell long, *3-SR* 1.7 times as long as *2-SR* (Fig. 66, see arrow). Frons depressed, smooth. Rostrum short, shorter than half height of eye. First tergite broadening posteriorly, scutum less broad (Fig. 95). Ovipositor sheath short and narrow, half as long as fore tibia (Fig. 98). Ground colour of body yellow to testaceous with little black pattern on vertex and mesoscutum. ♀: 5–6 mm. – Gambia, Mali, Nigeria, Senegal, Sierra Leone *C. (Sch.) coelofrons* Huddleston et Walker, 1988

Heteropteron Brullé

Heteropteron Brullé, 1846: 472 (description). Type species: *Heteropteron macula* Brullé, 1846 designated by VIERECK 1914: 69 (monotypic). – SHENEFELT 1978: 1688 (as valid genus of the subfamily Braconinae, literature up to 1914). DANGERFIELD *et al.* 1999: 926 (in key), 945 (as valid genus, redescription). MERCADO & WHARTON 2003: 868–869 (as valid genus, taxonomic comments).

Neocardiochiles Szépligeti, 1908: 423 (description). Type species: *Neocardiochiles fasciipennis* Szépligeti, 1908 designated by VIERECK 1914: 99 (monotypic). – SHENEFELT 1973: 804 (as valid genus, literature up to 1914). DANGERFIELD *et al.* 1999: 945 (as jun. syn. of *Heteropteron*). MERCADO & WHARTON 2003: 868–869 (as synonym of *Heteropteron*).

Taxonomic remarks – Up to now three species are assigned to the genus *Heteropteron*: *H. fasciipennis* (Szépligeti, 1908), *H. macula* Brullé, 1846 and *H. whitfieldi* Mercado, 2003. All three species are distributed in the Neotropical region (Brazil, Mexico).

A fairly detailed redescription (“diagnosis”) of the genus *Heteropteron* is presented by DANGERFIELD *et al.* (1999).

There are three opinions in the judgement of the taxonomic position of the three cardiochiline genera *Heteropteron* Brullé, 1846, *Neocardiochiles* Szépligeti, 1908 and *Wesmaelella* Spinola, 1853:

(a) WHITFIELD & DANGERFIELD (1997: 178) considered the three genera as valid and separated them with two alar venational, one propodeal and one claw features in their key to the Cardiochilinae genera of the New World.

(b) Two years later DANGERFIELD *et al.* (1999: 945) placed the genera *Neocardiochiles* and *Wesmaelella* in junior synonymy of *Heteropteron*.

(c) MERCADO & WHARTON (2003: 868–869) treated *Heteropteron* and *Wesmaelella* as two valid genera and placed *Neocardiochiles* in junior subjective synonymy of *Heteropteron*. This third standpoint is herewith accepted.

The distinction between *Heteropteron* and *Wesmaelella* is based on the species *H. fasciipennis* (Szépligeti) and *W. nigripennis* (Szépligeti) presented as follows:

- 1 (2) Propodeum with medio-longitudinal and fairly deep sulcus (Fig. 111). Second segment of maxillary palp flattened as in Fig. 110 (see arrow below). Claw with pectinate spinules (Fig. 114). Forewing: submedian vein ($1A + 2A + 1-1A$) with a vestigial transverse anal vein ($2A$, Fig. 116, see arrow), $2-SR$ without atavistic vein (Fig. 115, cf. Fig. 171 see arrow). Laterotergite distinct (Fig. 163). Pronope present. Wings subhyaline with transverse streak-form brown fumous pattern. – Neotropical region *Heteropteron* Brullé, 1846
- 2 (1) Propodeum without medio-longitudinal sulcus. Second segment of maxillary palp not flattened (Fig. 167, see arrow below). Claw without pectinate spinules (Fig. 170). Forewing: submedian vein ($1A + 2A + 1-1A$) without vestigial transverse anal vein ($2A$), $2-SR$ with an atavistic vein $1r$ (Fig. 171, see arrow). Laterotergite less distinct (Fig. 160). Pronope missing. Wings fully dark brown fumous. – Neotropical region *Wesmaelella* Spinola, 1853

Taxonomic remark – Exact distinction between *Heteropteron* and *Wesmaelella* would be definitely and reliably disclosed by the examination and comparison of the types of *H. macula* Brullé, 1846 and *Wesmaelella rubricollis* Spinola, 1853. Their types are deposited in the museums of Paris and Torino, respectively.

Heteropteron fasciipennis (Szépligeti)
(Figs 108–117, 150, 162–163)

Neocardiochiles fasciipennis Szépligeti, 1908: 424 ♀ (gen. et sp. n., female lectotype in HNHM). – SHENEFELT 1973: 804 (literature up to 1908). PAPP 2004: 186 (type locality, designation and condition of female lectotype).

Heteropteron fasciipennis (Szépligeti, 1908): DANGERFIELD *et al.* 1999: 946 (comb. n.).

Lectotype labels – (First label, printed) “Surinam / Michaelis”, second label is the lectotype card; third label is with the inventory number “780” (labels 2–3 attached by Papp 1967); fourth det. label by van Achterberg 1986 named “*Neocardiochiles fasciatipennis* Szépl.” (a slip of pen).

Redescription of the female lectotype – Body length 11 mm. Left antenna missing, right antenna deficient: with 23 flagellomeres (according to SZÉPLIGETI 1908: antenna “beiläufig 50-gliedrig”). Scape pyriform, 1.5 times as long as broad apically, its inner side apically deeply excised, pedicel short, first flagellomere twice longer than broad (Fig. 108). – Head in dorsal view less transverse (Fig. 109), 1.8 times as broad as long, eye somewhat protruding and slightly longer than temple, temple rather receded, occiput excavated. Ocelli round, near to each other (Fig. 109). Eye in lateral view 1.6 times as high as wide, temple just less wide than eye (18:19) and ventrally narrowing (Fig. 110, see arrows). Second segment of maxillary palp flattened as in Fig. 110 (see arrow below). Head polished, less hairy.

Mesosoma in lateral view 1.6 times as long as high, polished. Pronope present. Notaulix evenly deep, smooth, not meeting posteriorly. Propodeum smooth and shiny, with a medio-longitudinal sulcus (Fig. 111). Precoxal suture missing. Hind femur 3.8 times as long as broad distally (Fig. 112). Hind basitarsus long: one-fifth longer than tarsomeres 2–5 combined, inner spur of hind tibia just shorter than half length of basitarsus (Fig. 113). Middle tarsomeres 2–4 longer than broad, second tarsomere 1.7 times, third tarsomere 1.2 times and fourth tarsomere 1.1 times as long as broad apically (Fig. 162). Claw downcurved with pectinate spinules as in Fig. 114.

Forewing somewhat longer than body (13 mm). Pterostigma elongate (Fig. 115), five times as long as wide, issuing *r* from its middle. Second submarginal cell long: 3–SR twice as long as 2–SR, both veins weakly bent, SR1 less curved and 1.5 times as long as 3–SR. First discal cell elongate: 1–M 2.5 times as long as *m-cu* and 1–SR–M 1.2 times as long as 1–M (*cf.* Fig. 125). Submedian vein with short and vestigial 2A (Fig. 116, see arrow). – Hind wing: radial vein divided in two sections (1–SR, 2–SR) by a transverse radial vein (*r*, Fig. 117, see arrow). Subbasal cell as in *cf.* Fig. 159.

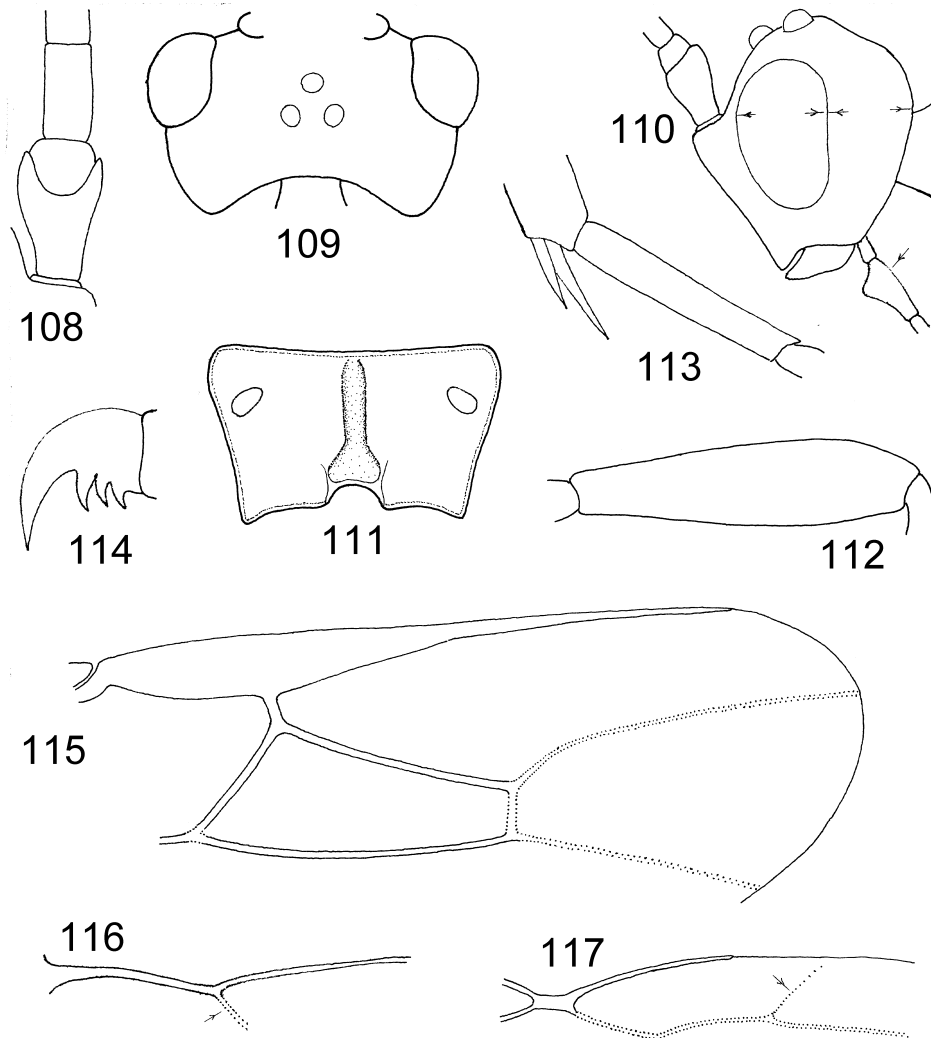
First tergite (Fig. 163) 1.35 times as long as broad posteriorly, scutum wide and basally proceeding in a narrow furrow, latero-tergite as in Fig. 163; every tergite polished. Third tergite somewhat longer than second tergite (22:20), second latero-tergite also well visible (Fig. 163). Hypopygium rounded and less pointed, ovipositor sheath fairly wide and as long as hind tarsomeres 1–3 combined (Fig. 150).

Body bicoloured. Black: antenna, head, mesosoma, last three tergites and ovipositor sheath. Tergites 1–5 testaceous. Tegula pale yellow. Legs also bicoloured, black: coxae 1–3, fore trochanters and fore femur, hind femur (basally

yellowish), rest of legs yellow, tibiae apically and tarsi 2–3 with blackish pattern. Wings subhyaline, median transverse streak and distal fourth of forewing brown.

Male and host unknown.

Distribution – Suriname.



Figs 108–117. *Heteropteron fasciipennis* (Szépligeti, 1908) (female lectotype): 108 = scape, pedicel and first flagellomere, 109 = head in dorsal view, 110 = head in lateral view and second segment of maxillary palp, 111 = propodeum, 112 = hind femur, 113 = basitarsus of hind leg with pair of tibial spurs, 114 = claw, 115 = distal part of right forewing, 116 = forewing: submedian vein with 2A, 117 = hind wing: radial vein with *r*

Taxonomic position – *Heteropteron fasciipennis* (Szépligeti) is close to *Wesmalella nigripennis* (Szépligeti), their distinction is presented at the latter species. It is nearest to *H. macula* Brullé (type species of the genus *Heteropteron*). The distinction of *H. fasciipennis* from *H. macula* is based on the original description of the latter species (BRULLÉ 1846: 272–273), because an authentic specimen of *H. macula* was not available:

- 1 (2) Face finely punctate, shiny. First tergite posteriorly with a pair of foveolae (“fossettes”). Ovipositor sheath gradually widening posteriorly. Second tergite antero-medially with a tubercle. Tergites 1–3 chestnut brown to brown. Forewing: pterostigma fully testaceous. ♀: ? (probably 14) mm. – Brazil *H. macula* Brullé, 1846
- 2 (1) Face polished. First tergite posteriorly with foveolae. Ovipositor sheath evenly wide (Fig. 150). Second tergite without tubercle (Fig. 163). Tergites 1–3 reddish yellow. Forewing: pterostigma yellow, basally brownish. ♀: 11 mm. – Brazil *H. fasciipennis* (Szépligeti, 1908)

An examination of the type specimen of *H. macula* may reveal its identity (or senior synonymy) with *H. fasciipennis*. The present redescription of *H. fasciipennis* promotes the proper recognition of the species, ascertained the synonymy, under the valid name *H. macula*.

It seems expedient to distinct *H. fasciipennis* from *H. whitfieldi*, the third species within the genus *Heteropteron*. Their separation is based on the original description of *H. whitfieldi* (MERCADO & WHARTON 2003: 869), i.e. no reliable specimen of this species was available:

- 1 (2) Posterior margin of mesopleuron smooth. Forewing: pterostigma five times longer than wide (Fig. 115). Medio-longitudinal furrow of propodeum evenly broad (Fig. 111). Inner spur of hind tibia just shorter than half length of basitarsus (Fig. 113). Pronotum black, first tergite testaceous. ♀: 11 mm. – Brazil *H. fasciipennis* (Szépligeti, 1908)
- 2 (1) Posterior margin of mesopleuron crenulated. Forewing: pterostigma four times longer than wide (Fig. 31 in MERCADO & WHARTON 2003: 883). Medio-longitudinal furrow of propodeum narrowing anteriorly (Fig. 28 l.c. 882). Inner spur of hind tibia as long as half length of basitarsus (cf. Figs 14–15 l.c. 854). Pronotum reddish brown, first tergite black. ♀: 10 mm. – Mexico *H. whitfieldi* Mercado, 2003

Psilommiscus Enderlein

Psilommiscus Enderlein, 1912: 98 (description). Type species: *Psilommiscus sumatranus* Enderlein, 1912 (designated by VIERECK 1914: 126). – DANGERFIELD *et al.* 1999: 927 (in key) and 951 (as valid genus, redescription, comments).

Cardiochiles Nees, 1818: SHENEFELT 1973: 786 (*Psilommiscus* as junior synonym of *Cardiochiles*).

Taxonomic status – The monotypic genus *Psilommiscus* was described on the basis of *P. sumatranus* Enderlein, 1912 (from Indonesia: Sumatra). Muesebeck (in MAO 1949) placed the genus in synonymy with *Cardiochiles* Nees, 1818 (cf.

SHENEFELT 1973: 786). DANGERFIELD *et al.* (1999) revalidated the genus and considered it as the sister-group of *Hansonia* Dangerfield, 1996. Supposedly further species will be discovered above all in the Indo-Australian region. The generic characters are the highly reduced and short setation of eye and the apical cup-like pit of scutellum (Fig. 121).

Psilommiscus albopilosus (Szépligeti), comb. n.
(Figs 118–131)

Cardiochiles albopilosus Szépligeti, 1902: 77 (in key) and 78 (description) ♂ (male lectotype in HNHM). – ENDERLEIN 1906: 246 (in key) and 248 (short redescription, distribution) ♀♂. WATANABE 1937: 143 (in key) and 144 (distribution). SHENEFELT 1973: 787 (literature up to 1937). PAPP 2004: 185 (type locality, male lectotype designation and condition).

Psilommiscus sumatranus Enderlein, 1912: 98 ♀♂ (monotypic genus, one female paralectotype in HNHM, **syn. n.** VIERECK 1914: 126 (designation of type species). Female lectotype and 2 female + 4 male paralectotypes are in Zoological Institute and Museum, Warsaw (*cf.* ENDERLEIN 1912: 98).

Cardiochiles sumatranus (Enderlein, 1912): SHENEFELT 1973: 800 (as valid species, literature up to 1949).

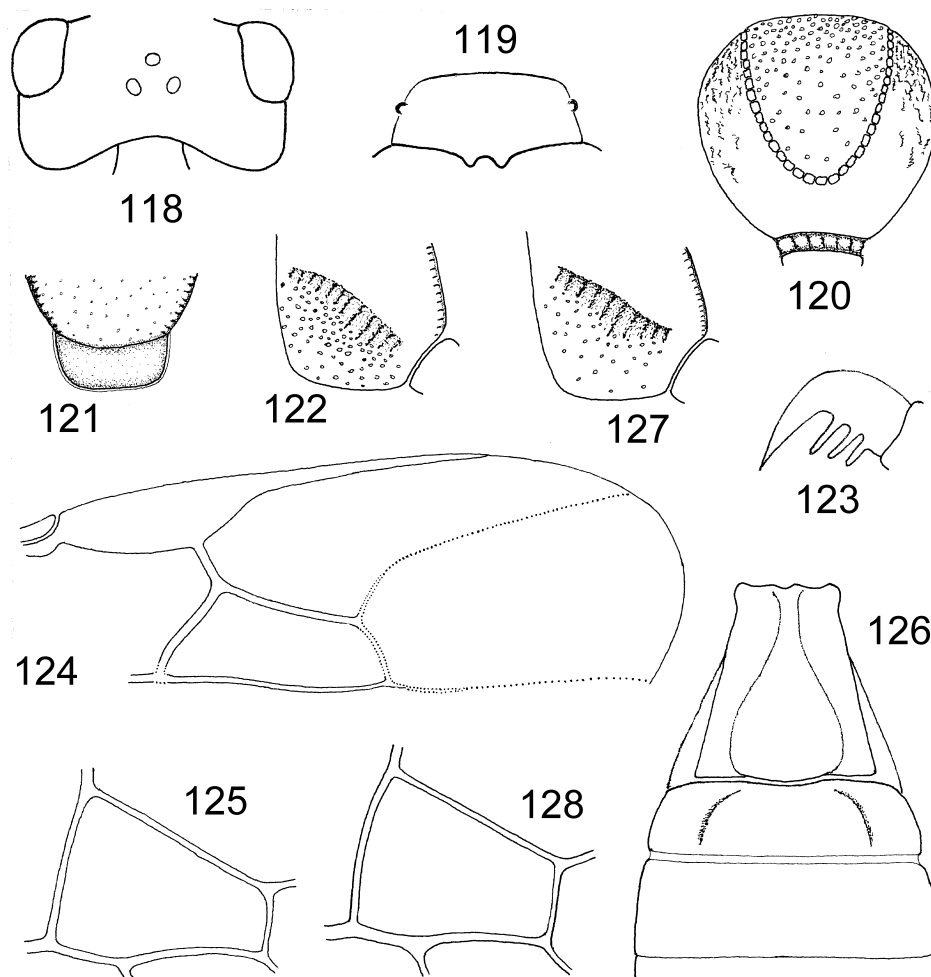
Lectotype labels of Cardiochiles albopilosus – (First label, printed) “Singapore / Biró 1898”; (second label) “albopilosus” (Szépligeti’s manuscript) / “det. Szépligeti” (printed); third label is the lectotype card; fourth label is with the inventory number “765”, fifth label is with the actual name *Psilommiscus albopilosus* (Szépligeti) (det. Papp 2014).

Redescription of the male lectotype of Cardiochiles albopilosus – Body length 7 mm. Antenna: scape, pedicel and first flagellomere present, i.e. flagellum missing. First flagellomere 1.6 times as long as broad apically. – Head in dorsal view less transverse (Fig. 118), 1.8 times as broad as long, eye somewhat longer than temple (17:15), temple less deeply rounded, occiput excavated. Ocelli middle-sized, almost round, OOL almost three times longer than POL (14:5). Eye with strongly reduced, sparse setae; in lateral view 1.75 times as high as wide, gena just less wide than eye (16:17), and ventrally narrowing (*cf.* Fig. 2, see arrows). Inner margin of eyes parallel, face 1.4 times as wide as high. Clypeus twice as wide as high, its lower edge medially with a pair of denticles (Fig. 119). Rostrum short. Face rugose, head above uneven to subrugulose, gena hairpunctured, head above and gena shiny.

Mesosoma in lateral view 1.4 times as long as high. Pronotum laterally with confluent striolation, pronope missing. Mesoscutum punctate, laterally with rugulae, shiny; notaulix evenly deep, crenulated (Fig. 120). Scutellum finely punctate, shiny, apically with a cup-like pit (Fig. 121). Precoxal suture crenulated, mesopleuron densely punctate, shiny (Fig. 122). Propodeum scrobiculate, above lunule with a quadrate areola. Hind femur 2.6 times as long as broad (*cf.* Fig. 50).

Inner spur of hind tibia somewhat shorter than half basitarsus. Pectination of claw as in Fig. 123.

Forewing as long as body, 7 mm long. Pterostigma (Fig. 124) three times as long as wide, issuing *r* distally from its middle and 0.6 times as long as width of pterostigma, *1-R1* one-fifth longer than pterostigma (50:40). Second submarginal cell: 3-*SR* 1.7 times as long as 2-*SR*, 2-*SR* bent, 3-*SR* straight. First discal cell: 1-*SR-M* 1.4 times as long as 1-*M*, 1-*M* 2.5 times longer than *m-cu* (Fig. 125).



Figs 118–128. *Psilommiscus albopilosus* (Szépligeti, 1902) (118–126: male lectotype, 127–128: female): 118 = head in dorsal view, 119 = clypeus, 120 = mesoscutum, 121 = cup-like pit posteriorly from scutellum, 122 = mesopleuron with precoxal suture, 123 = claw, 124 = distal part of right forewing, 125 = first discal cell, 126 = tergites 1–3, 127 = mesopleuron with precoxal suture, 128 = first discal cell

First tergite (Fig. 126) somewhat longer than broad (40:38) and evenly broadening posteriorly, scutum as in Fig. 126, its margin smooth, i.e. not crenulated. Second tergite four times broader behind than long medially, third tergite 1.3 times longer than second tergite, suture between them distinct, straight, smooth. Every tergite smooth and shiny.

Body black. Palpi blackish, ultimate segments brownish yellowish. Parategula and first tergite basally yellow. Legs black with much yellow pattern. Yellow: femora 1–2 apically, fore tibia and tarsus entirely, middle tibia proximally and basitarsus entirely, hind tibia basally. Wings subhyaline, distally brownish fumous. Pterostigma brown, metacarp yellowish. Veins brownish to brownish yellow.

*Differing features of the female paralectotype of *Psilommiscus sumatranus** – Similar to male lectotype. Body length 7 mm. Antennae deficient: right antenna with 19 and left antenna with 12 antennomeres. Head in dorsal view: eye as long as temple. Precoxal suture crenulated, below it mesopleuron strongly punctate and shiny (Fig. 122). Margin of first tergite yellow. – Locality: Indonesia, Sumatra, Seekaranda, leg. Dohrn (in HNHM).

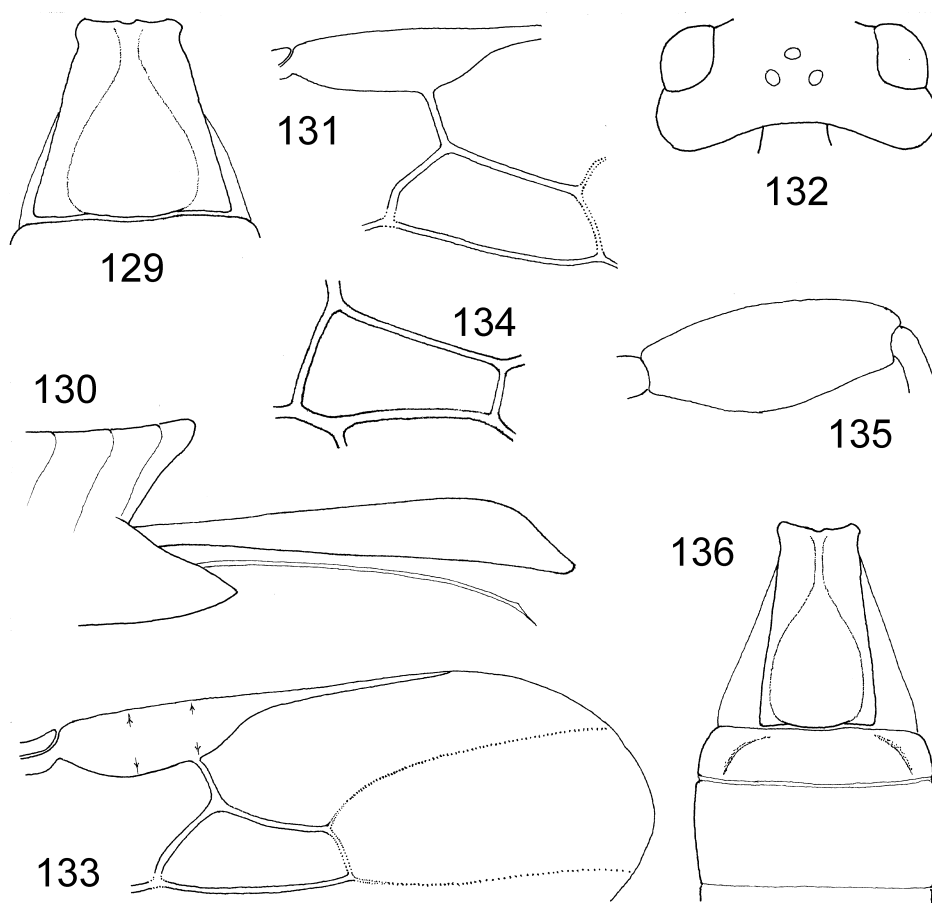
*Differing features of the single female of *P. albopilosus** – Body length 8 mm. Antenna about as long as body and with 46 antennomeres. First flagellomere 1.8 times and penultimate flagellomere 1.25 times as long as broad, middle 30–34 flagellomeres cubic, flagellum proximo-distally somewhat attenuating. Eye in dorsal view somewhat longer than temple (17:15). Face hairpunctate. Precoxal suture crenulated, below it mesopleuron punctate (Fig. 127). Hind femur 2.5 times as long as broad medially (cf. Fig. 50). Forewing somewhat longer than body, 8.5 mm long. Pterostigma (Fig. 131) three times as long as wide, *r* almost as long as width of pterostigma (11:13). Second submarginal cell: 3–SR1 1.45 times as long as 2–SR, 2–SR broken, 3–SR straight. First discal cell slightly less high: 1–SR–M 1.3 times as long as 1–M, 1–M twice longer than *m-cu* (Fig. 128). First tergite as long as broad posteriorly, its scutum broad (Fig. 129). Hypopygium less pointed, ovipositor sheath long: as long as hind tarsomeres 1–3 combined, widening posteriorly and apically rather pointed (Fig. 130). Corporal colour like male lectotype. – Locality: Indonesia, Nord-Celebes, Toli-Toli, XI–XII 1895 (in HNHM).

Host unknown.

Distribution – Indonesia (Sumatra), Singapore, Taiwan.

Taxonomic position – *Psilommiscus albopilosus* (Szépligeti) is nearest to *Austerocardiochiles morulus* (DANGERFIELD et AUSTIN, 1995: 390 in key, 420 description, assigned to *Cardiochiles*; DANGERFIELD et al. 1999: 931, 975 comb. n.) considering their common features: black corporal colour, crenulated notaulix, gradually widening scutum of first tergite and long ovipositor sheath; the two species are distinct by the following traits:

1 (2) "T 1 [first tergite] with lateral suture reduced, poorly defined particularly in apical half" (DANGERFIELD *et al.* 1999: 926). Gena and mesoscutum anteriorly smooth and shiny (generic differences). Head in dorsal view 1.8 times as broad as long, temple deeply rounded, eye with strongly reduced setae. Forewing: pterostigma widest distally, 3-SR 1.4 times as long as 2-SR, (Fig. 124). First discal cell high: 1-SR-M 1.4 times as long as 1-M (Figs 125, 128). Hind femur less thick, 2.5–2.6 times as long as broad (*cf.* Fig. 50). First tergite distinctly broadening posteriorly, third tergite 1.3 times as long as second tergite (Fig. 126). Hind two pair of legs blackish to black with more yellowish pattern. ♂: 7–8 mm. – Oriental region
 *Psilommiscus albopilosus* (Szépligeti, 1902), comb. n.



Figs 129–136. *Psilommiscus albopilosus* (Szépligeti, 1902) (female): 129 = first tergite, 130 = posterior end of metasoma, 131 = pterostigma and second submarginal cell of forewing. – *Austerochiles morulus* (Dangerfield et Austin, 1995) (female): 132 = head in dorsal view, 133 = distal part of right forewing, 134 = first discal cell, 135 = hind femur, 136 = tergites 1–3

- 2 (1) "T 1 [first tergite] and latero-tergites with suture clearly defined throughout" (DANGERFIELD *et al.* 1999). Gena and mesoscutum antetriorly roughened (generic differences). Head in dorsal view 2.1 times as broad as long, temple swollen, eye as long as temple (Fig. 132), eye hairy. Forewing: pterostigma somewhat wider proximally than distally (Fig. 133, see arrows), 3-SR 1.2 times as long as 2-SR (Fig. 133). First discal cell less high: 1-SR-M 1.9 times as long as 1-M (Fig. 134). Hind femur thick, 2.3 times as long as broad medially (Fig. 135). First tergite subparallel-sided: weakly broadening posteriorly, third tergite twice as long as second tergite (Fig. 136). Hind two pair of legs blackish to black, only tibiae proximally yellow. ♀: 6–8 mm.
– Australian region *Austerocardiachiles morulus* (Dangerfield et Austin, 1995)

Toxoneuron Say

Toxoneuron Say, 1836: 258 (description) – Type species: *Bracon* (*Toxoneuron*) *viator* Say, 1836 (designated by VIERECK 1914: 146). SHENEFELT 1973: 786 (as synonym of *Cardiachiles*). DANGERFIELD *et al.* 1999: 926 (in key) and 960 (as valid genus, indicating invalid synonymization, diagnosis).

Taxonomic position – *Toxoneuron* was suppressed in synonymy since ASHMEAD (1900: 130). Recently removed from the synonymy by DANGERFIELD *et al.* (1999: 960). Generic features of *Toxoneuron*: hind tibia apically with a cup-like formation (see Fig. 83 in DANGERFIELD *et al.* 1999); submarginal cell of the forewing long (3-SR four to five times longer than *r*); ovipositor sheath short to as long as hind tibia.

Toxoneuron bicolor Szépligeti (Figs 137–149)

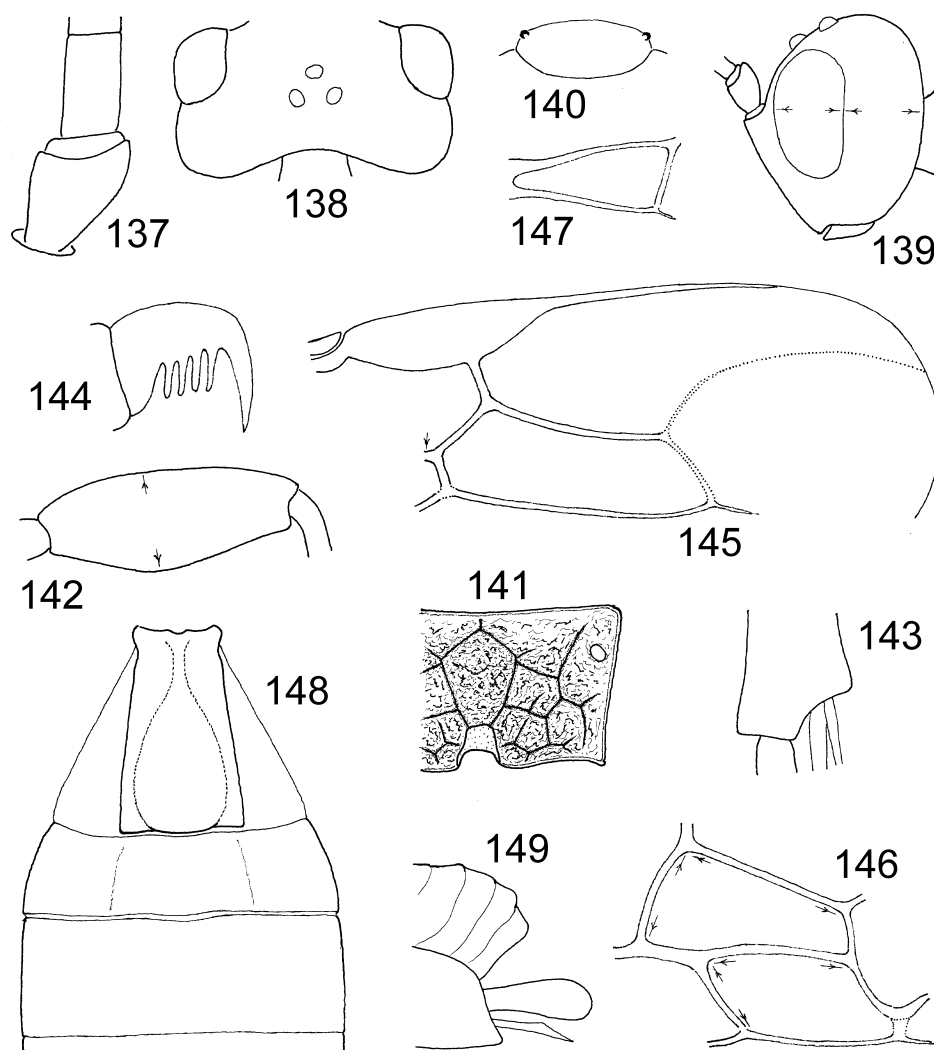
Toxoneuron bicolor Szépligeti, 1902: 78 ♀ (female lectotype in HNHM). – MERCADO & WHARTON 2000: 213 (redescription ♂♂, female lectotype designation by J. Papp, variability); 2003: 889. PAPP 2004: 186 (type locality, female lectotype condition and identity).

Cardiachiles bicolor (Szépligeti, 1902): MAO 1945: 126 (comb. n.). SHENEFELT 1973: 788 literature up to 1945).

Lectotype labels – (First label, handwritten) "Mexico / Reitter"; (second label) "bicolor" (Szépligeti's handwriting) / "det. Szépligeti" (printed); third label is the lectotype card; fourth label is with the inventory number "778".

Redescription of the female lectotype – Body length 9 mm. Pterostigma and 1-R1 of right forewing and left lateral part of first tergite damaged. Antenna about as long as head and mesosoma combined and with 41 antennomeres. Scape less globose: 1.35 times as long as broad apically, pedicel short, first flagellomere 1.6 times as long as broad (Fig. 137), flagellomeres 2–5 gradually shortening so that further flagellomeres transverse, ultimate 7–8 flagellomeres attenuating so that penultimate flagellomere 1.3 times as long as broad. – Head in dorsal view transverse (Fig. 138), 1.9 times as broad as long, eye as long as temple, temple rounded, occiput

excavated. Eye bare. Ocelli middle-sized, round and near to each other: OOL twice as long as POL. Eye in lateral view 1.8 times as high as wide, temple wider than eye (17:15) and beyond eye evenly wide (Fig. 139). Clypeus 2.5 times as wide as high, its lower edge convex (Fig. 140). Head polished, face finely hairpunctate.



Figs 137–149. *Toxoneuron bicolor* Szépligeti, 1902 (female lectotype): 137 = scape, pedicel and first flagellomere, 138 = head in dorsal view, 139 = head in lateral view, 140 = clypeus, 141 = propodeum 142 = hind femur, 143 = distal cup-like end of hind tibia, 144 = claw, 145 = distal part of right forewing, 146 = first discal and first subdiscal cells of right forewing, 147 = subbasal cell of hind wing, 148 = tergites 1–3, 149 = posterior end of metasoma

Mesosoma in lateral view 1.3 times as long as high. Notaulix evenly deep, finely crenulated, meeting behind. Precoxal sulcus and hind margin of mesopleuron crenulated. Mesoscutum and scutellum polished. Propodeum rugose, medial areola lengthened, carination areolae-like (Fig. 141). Hind femur 2.5 times as long as broad, thickest somewhat proximally (Fig. 142, see arrows). Inner spur of hind tibia somewhat longer than half basitarsus. Hind tibia with a short though distinct cup-like projection apically (Fig. 143). Hind basitarsus almost as long as tarsomeres 2–5 combined. Claw distinctly pectinate, denticles fairly long (Fig. 144).

Forewing as long as body, 9 mm long. Pterostigma (Fig. 145) 3.3 times as long as wide, issuing *r* distally from its middle, *r* one-fourth shorter (9:12) than width of pterostigma. Second submarginal cell fairly long: 3–SR twice as long as 2–SR, 2–SR with a vestigial vein *1r* (Fig. 145, see arrow) and almost 1.2 times as long as *r–m* (Fig. 145): First discal cell elongate: 1–SR–M 1.7 times as long as 1–M, 1–M twice as long as *m–cu* (Fig. 146, see arrows in upper cell); first subdiscal cell wide and short, 2CU1 curved and 1.6 times as long as *cu–a* (Fig. 146, see arrows in lower cell). – Hind wing: *cu–a* straight as in Fig. 147.

First tergite narrow (Fig. 148), 1.5 times as long as broad posteriorly, subparallel-sided, scutum anteriorly less narrowing. Third tergite 1.45 times longer than second tergite, second tergite 3.8 times as broad as long, its median field less distinct (Fig. 148). All tergites polished. Hypopygium less pointed, ovipositor sheath short: as long as hind tarsomeres 2–3 combined (Fig. 149).

Ground colour of body reddish yellow. Black: antenna and head entirely black, pronotum, middle macula of mesoscutum, tegula + parategula, mesopleuron, mesosternum and propodeum. Legs reddish yellow; black: coxae and trochanters, blackish: femore 1–2, weakly blackish: hind tibia apically and hind tarsus. Wings brownish fumous. Pterostigma blackish, veins dark brownish to blackish.

Male and host unknown.

Distribution – Mexico.

Taxonomic position – MERCADO & WHARTON (2003: 889) wrote that “*Toxoneuron bicolor* is identical or nearly so to the well-known *T. nigriceps*...” The female lectotype of *T. bicolor* was compared to two female specimens of *T. nigriceps* (Viereck) (their locality: USA: Texas, College Station, 1976, leg. et det. Edson, both females in HNHM). The subsequent rather subtle distinction between the two species may prove their validity as two distinct species. Supposedly more specimens of the two forms will decidedly confirm their taxonomic separation:

- 1 (2) Temple in dorsal view rounded, head less transverse, 1.9 times (60:31) as broad as long (Fig. 138). Lower edge of clypeus convex (Fig. 140). Hind femur 2.3 times (20:8) as long as broad proximally (Fig. 142, see arrows). Pectination of claw with equally long denticles (Fig. 144). Scutum of first tergite anteriorly slightly less narrowing, third tergite 1.35 times longer than second tergite (Fig. 148). q: 9 mm. – Mexico *T. bicolor* Szépligeti, 1902

- 2 (1) Temple in dorsal view swollen-rounded, head somewhat more transverse, twice (60:29) as broad as long (Fig. 151). Lower edge of clypeus weakly concave (Fig. 152). Hind femur twice as long as broad medially (Fig. 153, see arrows). Pectination of claw with different length denticles (Fig. 154). Scutum of first tergite anteriorly slightly more narrowing, third tergite 1.45 times longer than second tergite (Fig. 155). ♀: 7.4–9 mm. – USA, Philippines (introduced) *T. nigriceps* (Viereck, 1912)

Additional comment – MERCADO & WHARTON (2000: 214–218) allude to the “... wide range of variation in ... body colour, size of mouthparts, and setal pattern on face, clypeus, scutum and scutellum ... and we have been unable to link this variation to any pattern of distribution.” This variability is shown in the Figs 17, 19–20(A–J), 21(A–D) and 22–23 for the species *T. bicolor*. Concerning the validity of *T. bicolor* and *T. nigriceps*, they admit that “we are reluctant to synonymize the 2, however, because of potential differences in host specificity. [...] The widespread distribution of both *T. bicolor* and *H. [elico]verpa* zea in Mexico, with some of these records at least 100 yr old, together with the inability of *T. nigriceps* to develop successfully on *H. zea*, lead us to the suggestion that *T. bicolor* may be a host specific parasitoid of *H. zea*. *H. zea* is the main pest in corn, and the latter is widely cultivated in Mexico. This would explain the widespread distribution of *T. bicolor* in Mexico.” The other species, *T. nigriceps*, “... is host specific on *Heliothis virescens* (F.) and *H. subflexa* (GUENÉE).” This difference in host preferences seems to confirm the morphological, albeit very subtle, differences between the two species expounded in the above key. We are, supposedly, confronted with two braconid species being in statu nascendi.

Wesmaelella Spinola

Wesmaelella Spinola, 1853: 32 (description). Type species: *Wesmaelella rubricollis* Spinola (designated by VIERECK 1914: 152). – SHENEFELT 1973: 804 (literature up to 1914). WHITFIELD & DANGERFIELD 1997: 178 (in key as valid genus). DANGERFIELD *et al.* 1999: 945 (as junior synonym of *Heteropteron* Brullé, 1846). MERCADO & WHARTON 2003: 868–869 (as valid genus).

Wesmaella (sic): CASOLARI & CASOLARI MORENO 1980: 50 (syntype specimen of *Wesmaelella rubricollis* in Spinola Collection, Torino).

Psilophthalmus Szépligeti, 1902: 79 (description). Type species: *Psilophthalmus nigripennis* Szépligeti, 1902 (designated by VIERECK 1914: 126). – SCHULZ 1911: 67 (synonymization). SHENEFELT 1973: 805 (as junior synonym of *Wesmaelella*). DANGERFIELD *et al.* 1999: 945 (as junior synonym of *Heteropteron* BRULLÉ, 1846).

Taxonomic remarks – MERCADO & WHARTON (2003) considered *Wesmaelella* as a valid genus and *Psilophthalmus* as its junior synonym. The distinction between *Heteropteron* and *Wesmaelella* is described at the former genus (*H. fascipennis*). The two genera are fairly similar. Since SPINOLA's (1853) description no paper dealt with either the genus *Wesmaelella* or its type species *W. rubricollis*.

Wesmaelella nigripennis (Szépligeti)
(Figs 156–161, 164–171)

Psilophthalmus nigripennis Szépligeti, 1902: 79 ♀ (female lectotype in HNHM). – PAPP 2004: 186 (type locality, female lectotype designation and condition, identity, emendation as *Wesmaelella nigripennis*).

Wesmaelella nigripennis (Szépligeti, 1902): SCHULZ 1911: 68 (generic synonymization). SHENEFELT 1973: 805 (literature up to 1962).

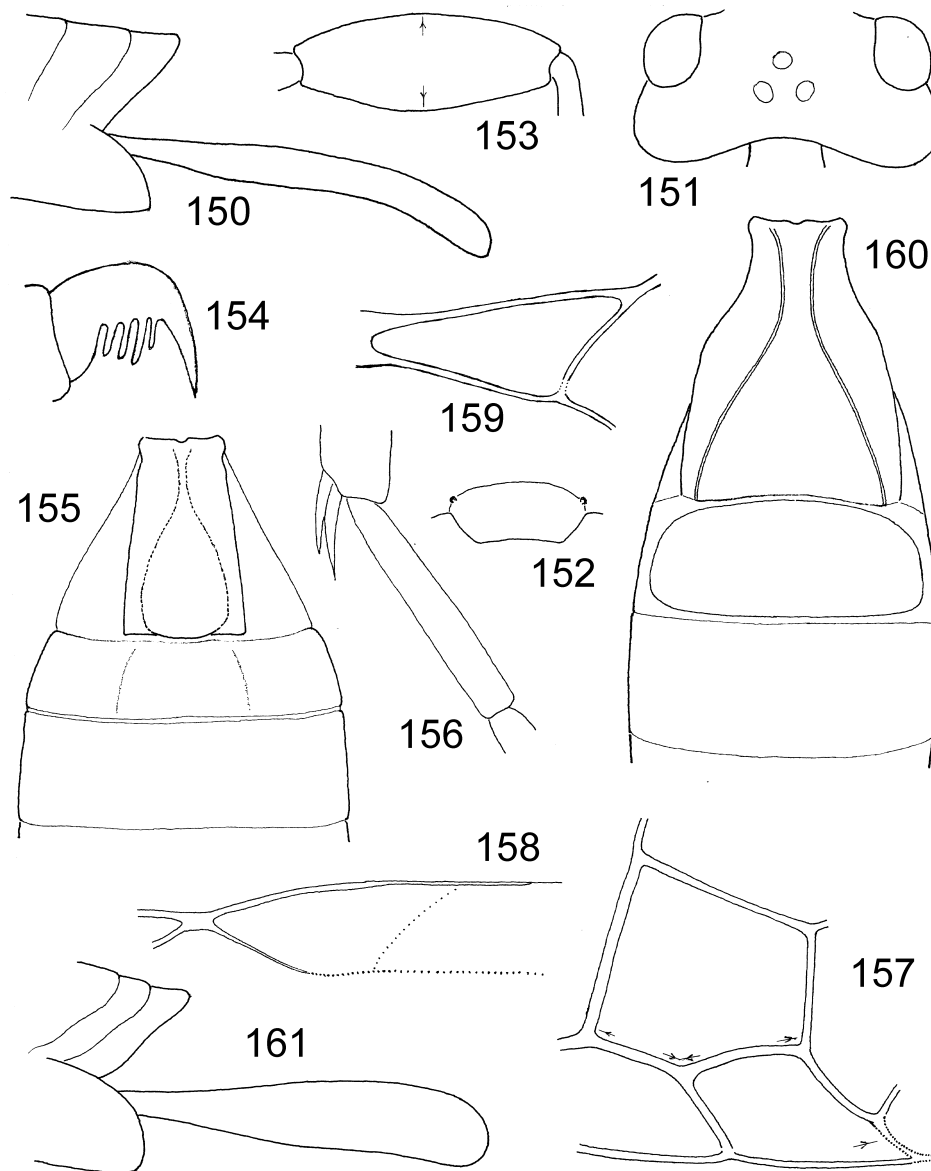
Heteropteron nigripennis (Szépligeti, 1902): DANGERFIELD *et al.* 1999: 946 (comb. n.). MERCADO & WHARTON 2003: 868–869.

Lectotype labels – (First label, handwriting) “Brasilia / Fonteboa”; (second label) “nigripennis” (handwriting) / “det. Szépligeti” (printed); third label is the lectotype card; fourth label is with the inventory number “779” (labels 3–4 attached by J. PAPP 1967); fifth label is the identification label by van Achterberg 1989 with the original name *Psilophthalmus nigripennis* Szépl.; sixth label is the identification label by J. Papp 1996 with the actual name *Wesmaelella nigripennis* (Szépligeti).

Redescription of the female lectotype – Body length 14 mm. Both antennae deficient: right antenna with 10 and left antenna with 19 antennomeres (according to Szépligeti 1902 “Fühler ziemlich kräftig”). Scape in frontal view globose: as long as broad apically; pedicel short, first flagellomere 2.2 times as long as broad, further flagellomeres gradually diminishing (Fig. 164). Scape in inner view excised (Fig. 165). – Head in dorsal view less transverse (Fig. 166), 1.8 times as broad as long, eye protruding and slightly shorter (18:21) than temple, temple rather receded, occiput excavated. Ocelli middle-sized, elliptic and OOL 1.5 times as long as POL. Eye in lateral view 1.5 times as high as wide, temple slightly wider than eye (20:18), temple ventrally clearly narrowing (Fig. 167, see arrows). Second segment of maxillary palp indistinctly flattened (Fig. 167, see arrow). Head polished, hairy.

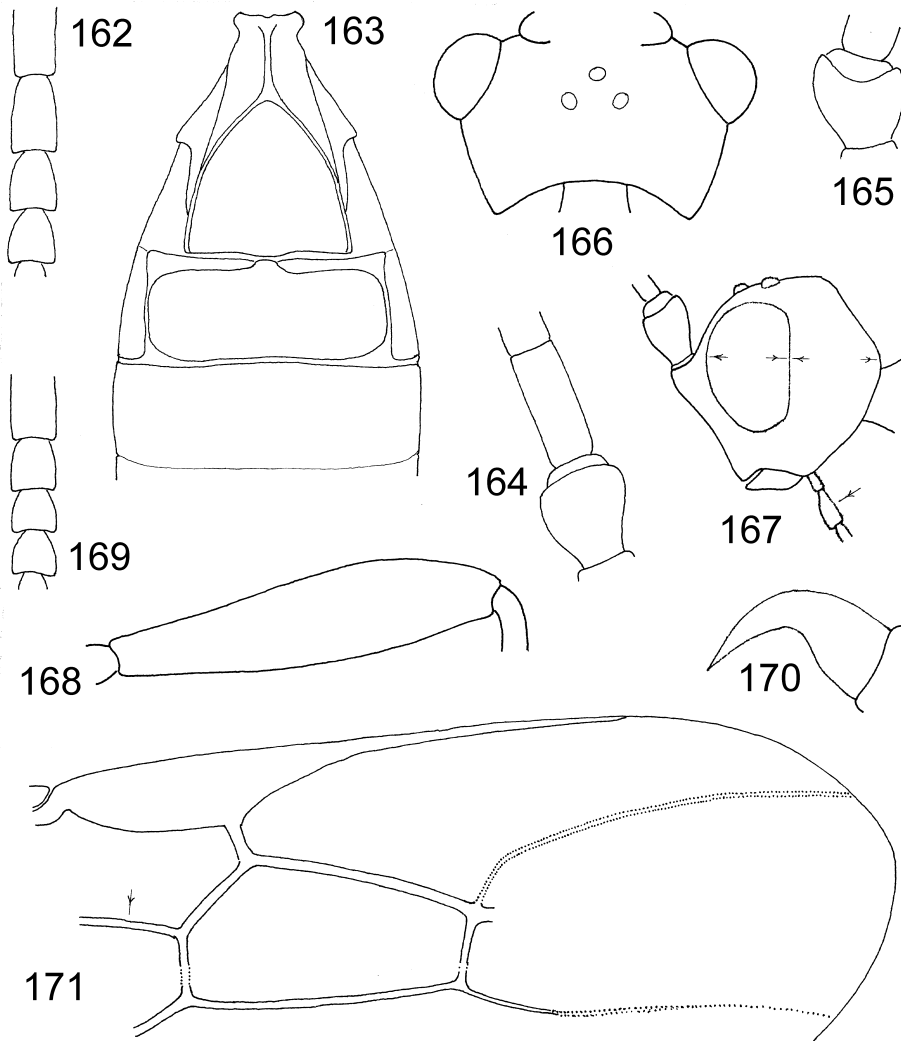
Mesosoma in lateral view 1.4 times as long as high, polished. Pronope missing. Notaulix distinct, smooth. Median lobe of mesoscutum domed. Prescutal furrow smooth, i.e. without crenulae. Propodeum entirely polished. Precoxal suture missing. – Hind femur 4.2 times as long as broad distally (Fig. 168). Inner spur of hind tibia shorter than half length of basitarsus (Fig. 156). Middle tarsomeres 3–4 shorter than broad (Fig. 169). Claw moderately downcurved, simple (i.e. without pectination), its basal lobe middle-sized (Fig. 170).

Forewing a bit longer than body (15 mm). Pterostigma (Fig. 171) four times as long as wide, issuing *r* clearly distally from its middle, *r* short. Second submarginal cell wide, 3–SR 1.5 times as long as 2–SR, 2–SR with an atavistic vein or *1r* (Fig. 171, see arrow). *SR1* curved and almost twice as long as 3–SR; *1–R1* somewhat longer than pterostigma (6065). First discal cell quadrate: *1–M* just shorter than *1–SR–M* and almost 1.4 times as long as *m–cu* (Fig. 157), *2–CUI*



Figs 150–161. *Heteropteron fasciipennis* (Szépligeti, 1908) (female lectotype): 150 = posterior end of metasoma. – *Toxoneuron nigriceps* (Viereck, 1912) (female and male): 151 = head in dorsal view, 152 = clypeus, 153 = hind femur, 154 = claw, 155 = tergites 1–3. – *Wesmaelella nigripennis* (Szépligeti, 1902) (female lectotype): 156 = basitarsus of hind leg with pair of tibial spurs, 157 = forewing: first discal and first subdiscal cell, 158 = hind wing: radial vein with median transverse vein, 159 = hind wing: subbasal cell, 160 = tergites 1–3, 161 = posterior end of metasoma

one-fifth longer than $1-CU1$, i.e. $cu-a$ near middle of $1-2-CU1$ (Fig. 157, see upper four arrows), subdiscal cell closed distally (Fig. 157, see lower single arrow). Submedian vein without vestigial $2A$. – Hind wing: radial vein divided in two section ($1-SR$, $2-SR$) by a curved transverse vein r (Fig. 158). Subbasal cell as in Figure 159.



Figs 162–171. *Heteropteron fasciipennis* (Szépligeti, 1908) (female lectotype): 162 = middle tarsomeres 2–4, 163 = tergites 1–3. – *Wesmaelella nigripennis* (Szépligeti, 1902) (female lectotype): 164 = scape, pedicel and first flagellomere in frontal view, 165 = scape and pedicel in inner view, 166 = head in dorsal view, 167 = head in lateral view, 168 = hind femur, 169 = middle tarsomeres 2–4, 170 = claw, 171 = distal part of right forewing

First tergite (Fig. 160) almost 1.5 times as long as broad and broadening posteriorly, scutum behind wide and anteriorly distinctly narrowing, latero-tergite less distinct dorsally. Second tergite 2.5 times as wide behind as long medially, third tergite 1.3 times longer than second tergite. Every tergite polished. Hypopygium rounded, ovipositor sheath wide, curved and about half as long as hind tibia (Fig. 161).

Body black. Tergites 1–3 and sternites testaceous. Antenna black. Palpi dark brown. Tegula black. Legs blackish, tarsi brownish. Wings blackish fumous. Pterostigma and veins blackish.

Male and host unknown.

Distribution – Brazil.

Taxonomic position – The original description of *Wesmaelella rubricollis* Brullé, 1846 is confined mainly to colour, true specific features (corporal measurements, head and tergites 1–3 formations, alar venations, sculpture) are neglected. Consequently, the reliable distinction between *W. rubricollis* and *W. nigripennis* is possible only by the examination of the type specimens of the two species in question. The type specimen of *W. rubricollis* is housed in the Museo Civico di Storia Naturale, Torino (CASORALI & CASORALI MORENO 1980: 50), and curatorial policy allows study only on the spot at the museum. Owing to this taxonomic restraint the distinction of *W. nigripennis* from *Heteropteron fasciipennis* seems preliminary. Authentically identified specimen of *W. rubricollis* was not available. Finally, in the original description SZÉPLIGETI (1902) did not distinguish *W. nigripennis* from its nearest ally. Synonymisation of *W. nigripennis* with *W. rubricollis* cannot be ruled out. If this synonymy proves to be valid, my redescription refers to *W. rubricollis*.

The distinction between *H. fasciipennis* (Szépligeti) and *W. nigripennis* (Szépligeti) is based on rather subtle features, the subsequent key promotes their separation:

- 1 (2) Claws roughly pectinate (Fig. 114). First tergite: scutum more narrowing anteriorly (Fig. 163). Eye in lateral view somewhat wider (20:16) than gena (Fig. 110, see arrows). Hind femur 3.7 times as long as broad (Fig. 112). Middle tarsomeres 2–4 longer than broad: second tarsomere 1.7 times, third tarsomere 1.2 times and fourth tarsomere 1.1 times as long as broad apically (Fig. 162). Third tergite somewhat longer than second tergite (Fig. 163). Wings subhyaline, forewing distally with two transverse brown streaks. ♀: 11 mm. – Suriname *Heteropteron fasciipennis* (Szépligeti, 1908)
- 2 (1) Claws not pectinate (Fig. 170). First tergite: scutum less narrowing anteriorly (Fig. 160). Eye in lateral view as wide as gena (21:20, Fig. 167). Hind femur four times as long as broad (Fig. 168). Middle tarsomeres 2–4 shorter than long: second tarsomere as long as broad, third tarsomere slightly broader than long and fourth tarsomere broader than long (Fig. 169). Third tergite 1.4 longer than second tergite (Fig. 160). Wings evenly dark brown fumous. ♀: 14 mm. – Brazil *Wesmaelella nigripennis* (Szépligeti, 1902)

A Magyar Természettudományi Múzeum Szépligeti-féle Cardiochilinae fajainak típusrevíziója (Hymenoptera, Braconidae: Cardiochilinae)

PAPP J.

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Szépligeti Győző (1833–1915) (nevét 1870-ben magyarosította Schönbauer-ről) budapesti középiskolai természetrajz-tanár Mocsáry Sándor, a Nemzeti Múzeum akkori hártvásszárnyú-gyűjteményének kurátora javaslatára kezdett el a valódi fürkészekkel (Ichneumonidae), a gyilkosfürkészekkel (Braconidae) és más kisebb fürkészdarázscsaládokkal foglalkozni (CSIKI 1915). Összesen 61 tudományos közleménye jelent meg, amelyekben a hártvásszárnyúak (Hymenoptera) 886 új fajt írt le. Rovargyűjteményét a Nemzeti Múzeumnak ajándékozta, ezt ma a Magyar Természettudományi Múzeum őrzi.

Szépligeti Győző 11 gyilkosfürkészfajt írt le 1902 és 1914 között a Cardiochilinae alcsaládból. Ezek típusait a Magyar Természettudományi Múzeum Hymenoptera Gyűjteményében helyezte el. A fajok típuspéldányai az Óvilág és Újvilág trópusi országaiból származtak. Új fajait négy genuszba sorolta, melyek a jelenlegi rendszer szerint a következők (zárójelben a szinoním nevek): *Cardiochiles* Nees, 1818, *Heteropteron* Brullé, 1846 (*Neocardiochiles* Szépligeti, 1908), *Toxoneuron* Say, 1836 és *Wesmaelella* Spinola, 1853 (*Psilophthalmus* Szépligeti, 1902).

Szépligeti az új fajok leírásában az egyes testrészek színezeti különbségeit emelte ki, és jóval kevesebb méretbeli, alaki, szárnyerezeti és vésetbeli különbséget vett figyelembe. Emiatt leírásai alapján szinte lehetetlen egyértelműen azonosítani fajait. A jelen tanulmányban az újraleírás messzemenően kiterjed azokra a bélyegekre, melyek a korszerű leírás követelményei.

A *Schoenlandella* Cameron, 1904 a szakirodalomban hol önálló genuszként, hol a *Cardiochiles* NEES alnemeként szerepel, taxonómiailag az alnemi beosztás a reális. Egy új szinoním név és két új névkombináció megállapítását ismertetjük. Az angol nyelvű Bevezetőben az alábbi 11 Szépligeti-féle Cardiochilinae faj rendszertani beosztását tesszük közzé, jelezve elterjedésüket és a típus minőségét (lektotípus, paralektotípus):

Austerocardiochiles Dangerfield, Austin et Whitfield, 1999
 enderleini (Szépligeti, 1908) (*Cardiochiles*)
 punctatus (Szépligeti, 1913) (*Cardiochiles*, **comb. n.** (*Cardiochiles*)
Cardiochiles Nees, 1818
 (*Cardiochiles*) *fuscipennis* Szépligeti, 1900
 (*Schoenlandella*) *niger* Szépligeti, 1914
 (*Schoenlandella*) *szepligetii* Enderlein, 1906 = *C. testaceus* Szépligeti, 1902, nec *C. testaceus* Kriechbaumer, 1894

- (*Cardiochiles*) *variegatus* Szépligeti, 1913
 (*Cardiochiles*) *xanthocarpus* Szépligeti, 1913
Heteropteron Brullé, 1846 = *Neocardiochiles* Szépligeti, 1908
fasciipennis (Szépligeti, 1908) (*Neocardiochiles*)
Psilommiscus Enderlein, 1912
albopilosus (Szépligeti, 1902), **comb. n.** (*Cardiochiles*) = *sumatranus* Enderlein, 1912, **syn. n.** (*Psilommiscus*)
Toxoneuron Say, 1836
bicolor Szépligeti, 1902
Wesmaelella Spinola, 1853 = *Psilophthalmus* Szépligeti, 1902
nigripennis (Szépligeti, 1902) (*Psilophthalmus*)

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